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EXAMINING THE INFLUENCES ON FACULTY DEPARTURE INTENTIONS: A NATIONAL STUDY USING NSOPF-99

A Thesis in

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ABSTRACT

The flow of faculty into and out of higher education and within higher education institutions is a topic of continuing concern to the higher education community. This research focuses on the dynamics of faculty satisfaction and intention to leave as an important institutional outcome and predictor of faculty turnover. It proposes a theoretical model of faculty turnover intentions and tests the model using the latest 1999 National Study of Postsecondary Faculty (NSOPF-99). The study focuses on full-time instructional faculty in research and doctoral institutions. Structural Equation Modeling (SEM) is used to identify and model the relationships among the variables associated with intended faculty departure.

The study presents three path models, one for all faculty, one for tenured faculty and the last one for non-tenured faculty. The path models visualize the direct and indirect effects of demographic characteristics, institutional characteristics, work experience and satisfaction variables on intention to leave. The top three strongest predictors of faculty departure intentions are seniority, satisfaction with job security, and satisfaction with compensation. Senior faculty are less likely to seek another position than junior faculty. For tenured faculty, satisfaction with compensation is more important than satisfaction with job security; and for non-tenured faculty, vice versa. The total effects of these three variables outweigh the total effects of the rest of the variables in the model. Satisfaction with job autonomy, with resources and perceived institutional decline also have strong direct effects. Faculty's work experience influences their intentions to leave, both directly and indirectly through its impact on job satisfaction. Teaching and service productivity,

rather than research productivity, is significantly related to turnover intentions. Compensation has strong indirect effect through its impact on every aspect of job satisfaction. The effects of personal characteristics and institutional characteristics variables are weak and indirect. The study also identifies five external "pull" factors but only finds one factor, extrinsic rewards, to be significantly related to intended departure.

Although this study is limited by the available information in NSOPF-99, it has high generalizability. Using the results, policymakers can improve retention rate of high quality faculty by improving campus climate, changing financial or personnel policies, increasing faculty compensation or using merit pay, reassigning faculty workload, and providing incentives on teaching, research or service. These policies can be implemented at institutional level or at departmental level. The results of this study will provide empirical proof for scholars, institutional researchers and planners, and campus and system executives for their decision-making.

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Chapter 1

Introduction

"The excellence of higher education is a function of the kind of people it is able to enlist and retain on its faculties." (Bowen & Schuster, 1986, p. 3) The flow of faculty into and out of higher education and within higher education institutions is a topic of continuing concern to the higher education community. Previous studies have suggested that intention to stay/leave is the immediate precursor of actual turnover behavior (Hom, Caranikas-Walker, Prussia, & Griffeth, 1992; Mobley, 1982; Steers & Mowday, 1981). It is also an important indicator of an individual's commitment and satisfaction toward one's work and organization. This study was conducted to examine the factors that influence departure intentions of full-time instructional faculty in research and doctoral institutions. It seeks to fill an existing void on this topic in the literature by proposing and testing a structural equation model of faculty departure intentions.

Chapter One is an introductory section, describing the changing environment of higher education, the challenges facing research and doctoral institutions, the multi-faceted nature of faculty work, and the significance of the study. Chapter Two presents a literature review, the conceptual framework and the research questions. Chapter Three discusses the methodology, such as sampling process, weights and design effects, definitions of the variables, and the statistical methods. Chapter Four and Chapter Five contain the results of the analyses. First, a structural equation model for all full-time

faculty was built. However, further analyses suggested tenured and non-tenured faculty have different patterns of departure. Therefore, the study went on to build different models for two groups, and the results are presented in Chapter Five. Finally, Chapter Six summarizes the implications and limitations of the study.

The Research and Doctoral Institutions

This study focuses on research and doctoral institutions. According to the 1994 Carnegie Classification of Institutions of Higher Education, there are 235 research and doctoral institutions in the U.S. They form four categories of the 1994 Carnegie Classification:

Research Universities I: These institutions offer a full range of baccalaureate programs, are committed to graduate education through the doctorate, and give high priority to research. They award 50 or more doctoral degrees each year. In addition, they receive annually $40 million or more in federal support.

Research Universities II: These institutions offer a full range of baccalaureate programs, are committed to graduate education through the doctorate, and give high priority to research. They award 50 or more doctoral degrees each year. In addition, they receive annually between $15.5 million and $40 million in federal support.

Doctoral Universities I: These institutions offer a full range of baccalaureate programs and are committed to graduate education through the doctorate. They award at least 40 doctoral degrees annually in five or more disciplines.

Doctoral Universities II: These institutions offer a full range of baccalaureate programs and are committed to graduate education through the doctorate. They award annually at least ten doctoral degrees in three or more disciplines or 20 or more doctoral degrees in one or more disciplines.

Research and doctoral institutions only account for 6.9 percent of all institutions in the U.S., but they hire about 45 percent of all full-time faculty and 23 percent of all part-time faculty (NCES, 2001). They have the highest prestige and distinction in the higher education system and hold the most sought after positions for talented faculty (Cole, 1994). Sutton (1994) noted two distinctions of these universities: the first has been in educating the leadership of nations; and the second is "attaining and exemplifying intellectual superiority and creativity" (p. 310). Lipset (1994) believes that the American research university "has been the only form of tertiary education which has combined the functions of innovative research with teaching" (p. 219).

Scientific research dominates these campuses. According to the National Science Foundation (NSF), viewed in terms of 1998 dollars, the total research and development expenditures per faculty member across these institutions doubled from roughly $70,000 per faculty member in 1971 to about $140,000 in 1998 (Ehrenberg, 2002). This growth in scientific research expenditures was partly driven by the availability of government, corporation and foundation funding and partly by the competition for status among these institutions. For instance, U.S. News and World Report's annual ranking of universities places heavy weight on the volume of external research funding the institutions receive. Some scholars pointed out that this practice has caused universities to place too much

weight on research and not enough on the quality of their academic programs (Ehrenberg, 2002; Cole, 1994).

Faculty in Research and Doctoral Institutions

Faculty Work

Faculty have multiple roles (e.g., teacher, adviser, researcher, university citizen, and departmental colleague), and these roles produce a multifaceted complex of strains on faculty (Fairweather, 1996; Gmelch, Wilke & Lovrich, 1986). According to Bowen and Schuster (1986), faculty's work includes instruction, research, public service, and institutional governance and operation (i.e., administration). Some scholars (i.e., Yuker, 1984) argued for including professional development and consulting as separate activity categories. Each generic activity category contains distinct concepts of workload, time allocation, and productivity. Above all, faculty members in research and doctoral institutions are hired for their research promise or achievement (Lipset, 1994). According to the 1993 National Study of Postsecondary Faculty (NSOPF-93), in fall 1992, full-time faculty in research institutions spent an average of 45.2% of their time in teaching activities, 31% in research and scholarship, 12.2% in administration, and 5.3% in service; full-time faculty in doctoral institutions spent an average of 53.2% of their time in teaching, 23.3% in research, 11.9% in administration, and 5.2% in service (NCES, 2000). Faculty in research and doctoral institutions have lower teaching

workloads than faculty in institutions that are predominantly or solely undergraduate teaching in nature.

At its most basic level, though, all faculty work involves the transfer, discovery, and application of knowledge. Layzell (1999) identified three unique characteristics of faculty work:

- A high level of autonomy. Faculty are highly autonomous professionals who have significant freedom over the mode of their instruction, research and service activities.
- Asynchronous work schedules. Most faculty do not work the typical 9-5 schedule that many other professions do. Outside of regularly scheduled courses, faculty work can and does happen at any time of day or night.
- Preeminence of the discipline in faculty worklife. This characteristic is most applicable to faculty in research and doctoral institutions. The faculty's "loyalty to the institution or even to the school/college is clearly secondary to loyalty to the discipline" (Layzell, 1999, p. 15). The disciplinary values and mores determine faculty priorities and behaviors in the workplace. Contrarily, professionals working for other types of organizations are encouraged to conform to the values, traditions and cultures of the employing organization.

New Challenges Facing Faculty

In the 1990s, higher education in the U.S. was challenged with fiscal constraints and increased demands for productivity and accountability (Vander Putten & Wimsatt,

1998). Layzell (1999) observed four trends in the changing environment of higher education in the 1990s:

1. Stagnating state support and an increased reliance on tuition and fees to finance institutional operating costs;
2. Increased reliance on student loans in student aid policy;
3. Increased desire for accountability and linking funding to institutional performance by external stakeholders; and
4. The advent of instructional technology and distance learning and rising competition from nontraditional providers.

These trends form the context for higher education's movement into the twenty-first century and the way in which faculty worklife, rewards, satisfaction, and turnover will be reviewed.

The changing environment in higher education in the 1990s presses upon the faculty and threatens – or has already disrupted – traditional features of academic life (Finkestein, Seal & Schuster, 1998). Expectations of the faculty have risen steadily, as institutions and their patrons stress "productivity". In research, faculty are expected to get more research grants which are linked with the ranking of an academic program or institution. Faculty also find they are now held more strictly accountable for student learning outcomes due to the assessment movement which was launched with vigor during the 1980s. Faculty participation in university governance, however, is scarce: top-down management styles relegate the faculty to a more peripheral role. Faculty's work schedules become more and more asynchronous due to the advent of such technologies as email and Internet.

Faculty compensation increased steadily in terms of real (adjusted) salaries throughout the 1980s. However, it suffered its first decline in 1990-91, experienced similar declines for 1992-93 and 1996-97, and has hovered near or below the break-even point for the first seven years of the last decade (AAUP, 1997; Magner, 1997). Ehrenberg (2002) observed another two trends regarding faculty salaries: (1) the declining salaries of faculty employed at public institutions relative to their private counterparts; (2) the growing dispersion of average faculty salaries across academic institutions within both the public and private sectors. For example, in the fall of 1978, the average salary of professors at public research and doctoral institutions was 91% of the average salary of professors at private research and doctorate institutions. By 1993, this ratio had fallen to 79%, and it has hovered around that level ever since. Ehrenberg (2002) believed that this decline would make it more difficult for public universities to hire and retain top faculty, especially at the senior level. Similarly, the increased dispersion of average faculty salaries across institutions in both the public and private sectors suggests that it is becoming increasingly difficult for some institutions to attract and retain high quality faculty.

The academic labor market for some disciplines, especially humanities, has been a strong buyer's market. It constrains access for aspirant faculty and limits mobility for existing faculty, but enables institutions to hire more and more part-time or off-tenure track faculty (Finkelstein, Seal & Schuster, 1998; Nelson, 1997). The number of part-time and off-track full-time appointments is expanding rapidly relative to that of "traditional" full-time, tenured or tenurable appointments.

In the 1990s, the tenure system was under continuous attack because it "erodes accountability, protects mediocrity, and provides too few incentives for best effort" (Brooks, 1994, p. 243). "On the whole, the faculty of the 1990s have become more and more accustomed to hearing themselves characterized as a part of the problem, as a central feature of the academy that needs to be "fixed" if the higher education enterprise is to maintain viability (and market share) in the coming era" (Finkelstein, Seal & Schuster, 1998, p. 3).

Faculty Turnover

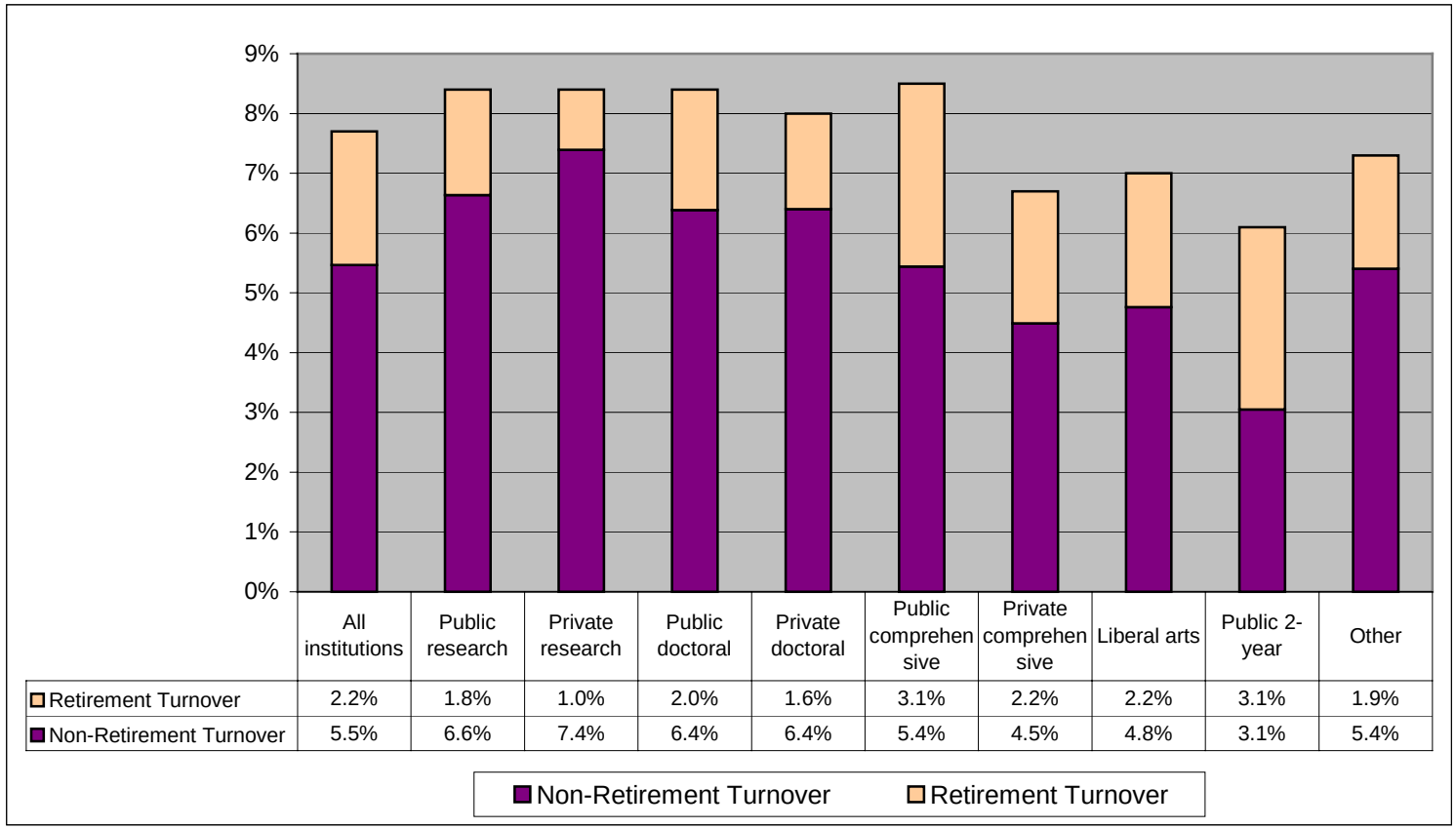
A decade ago, higher education scholars predicted a major faculty turnover in the late 1990s and into the twenty-first century – a prediction based on demographic data of an aging faculty. In *American Professor: A National Resource Imperiled*, Bowen and Schuster (1986) estimated that between the years 1985 and 2009, there would be a need to replace approximately two thirds of the entire faculty of 1985, with the bulk of the hiring beginning in 1995. In 1989, Bowen and Sosa studied the demand side of the academic labor market and presented projections of a forthcoming shortage of faculty in Arts and Sciences disciplines. Forecasted faculty shortages have not yet materialized, but they heighten concerns about departures.

The beginning of 1990s, due to fiscal constraints, many institutions lacked the financial resources to support a large number of tenured positions. They began to reduce the number of full-time faculty or replace full-time faculty with part-timers or adjuncts. Only in the mid-1990s, as the U.S. economy benefited from low inflation, a tight labor

market, and rapid but controlled growth, the number of faculty began to increase rapidly. The 1999 National Study of Postsecondary Faculty (NSOPF-99), conducted by the National Center for Educational Statistics (NCES), shows that as of fall 1998, about 1.1 million (1,134,163) faculty worked in postsecondary institutions, an increase of about 25 percent over the fall of 1992 (904,935). In 1998, approximately 57% of the faculty (646,000) worked in full-time positions, an increase of 22.4% over 1992 (528,260). Between fall 1997 and fall 1998, about 7.7% of all full-time faculty left their positions: 2.2% of them retired, and the remaining 5.5% left for a variety of other reasons (NCES, 2001) (see Figure **1-1**). Non-retirement departure rates were high among research and doctoral institutions, which were above 6.4%. Especially in private research universities, the total turnover rate was 8.4%, and the non-retirement turnover rate was as high as 7.4%. Faculty in these institutions were more likely to leave for another position than faculty working in other types of institutions. This report is in conflict with Ehrenberg's (2002) prediction that private institutions will do a better job to attract and retain faculty because they offer higher salaries than public institutions. It suggests that salary alone might not be the major reason for faculty mobility.

As Brown (1967) noted, the idea of working one's way up in a single institution, without seriously considering other job opportunities, is not common among faculty members. Except for a few faculty members deeply entrenched by tenure and other ties, each year many professors voluntarily consider possible new employment. According to Brown, mobility is accepted and approved by the profession "…because loyalty to discipline transcends loyalty to school and because teaching-research skills are readily transferable among schools." (1967, p. 25)

Figure 1-1: Full-time Faculty Turnover Rate by Institutional Type (Fall, 1997-98)



	All institutions	Public research	Private research	Public doctoral	Private doctoral	Public comprehensive	Private comprehensive	Liberal arts	Public 2-year	Other
Retirement Turnover	2.2%	1.8%	1.0%	2.0%	1.6%	3.1%	2.2%	2.2%	3.1%	1.9%
Non-Retirement Turnover	5.5%	6.6%	7.4%	6.4%	6.4%	5.4%	4.5%	4.8%	3.1%	5.4%

Source: U.S. Department of Education, NCES, 1999 National Study of Postsecondary Faculty, "Institution Survey".

Human capital theorists believe that personal endowments such as ability and schooling translate into returns in the market place. An individual's attributes and background generate educational, occupational, and economic attainment at different points in the life course (Becker, 1964; Mincer, 1971; Rees & Schultz, 1970). The professors who have stronger credentials, such as better institutional origins and higher research/teaching productivity, have more job opportunities.

Other researchers argue that career outcomes are more than a matter of personal choices or achievements. Academic career outcomes depend largely on institutional arrangements and on the division of labor among academic organizations (Youn & Zelterman, 1988). They believe that the academic labor market is multiple and overlapping. The academic labor market is divided by such factors as subject matter specialty, sex, religion, race, and academic rank of the individuals and by institutional region, stature, size, control, degree level and governance (Brown, 1967; Smelser & Content, 1980; Youn & Zelterman, 1988). For instance, large research institutions are in the market for different kinds of candidates than institutions which specialize in undergraduate teaching alone. Academic workers seem to operate in segmented labor markets that "…offer different working conditions, different opportunities, and different institutional norms to govern incentives." (Youn, 1988, p. 15) This confines the mobility within the academia.

Each year, some people leave the academy. Rosenfeld and Jones (1988) identified three factors affecting movement out of academia. The first factor is general market conditions: the conditions within academia and conditions in the outside economy. The worse the inside conditions, the greater the attrition; and the better the

conditions outside, the greater the attrition (Bowen & Schuster, 1986). The "pull" factors may be the style of non-academic work, reduced emphasis on publishing, or higher income, which make non-academic employment attractive to some Ph.D.s. The second factor is scholarly success. Some people are pushed out of the academy because they failed to get tenure or they had low research/teaching productivity. Kapsis and Murtha (1985) also found that those who were less qualified and in fields with declining enrollments were more likely to have non-academic employment. Palmer and Patton (1981) reported that those who published less and rated themselves as less successful were more likely than other faculty members to have seriously considered leaving academia permanently. Institutional policies can also be the "push" factor. Between 1993 and 1998, 40 percent of all institutions took at least one action to reduce the size of the full-time faculty, and 22 percent of them replaced full-time faculty with part-time faculty (NCES, 2001). The last factor affecting the movement out of academia is career interest. Rosenfeld and Jones (1988) noted that lack of success in academia can indicate lack of interest in such employment rather than inability to succeed. In general, exit from academia is seen as an irreversible career move because of the differences in the nature of these two types of employment (e.g., Harmon, 1968).

Statement of the Problem

Faculty mobility may afford individuals with greater opportunities for professional achievement or bring new vitality to an academic department (Trevor,

Gerhart, & Boudreau, 1997; Roseman, 1981). From an economic perspective, Brown (1967) explored the benefits of mobility:

> Some mobility is good, and it should not be imperiled otherwise: in a dynamic economy where some sectors shrink and others grow, labor must follow the newer demands to the needed areas. When consumers' tastes change to increase the desires for college education, resources must flow to the collegiate industry if marginal social costs and marginal social benefits are to be moved toward equality. Mobility should occur (Brown, 1967, p. 32).

Some faculty departure is a natural part of professional advancement within academia. Retirements and other terminations can create opportunities for organizational change or curricular change. But turnover may represent potentially serious institutional problems such as faculty dissatisfaction, loss of talent, non-competitive salaries, and negative organizational climate. The costs of turnover, such as subsequent recruiting costs, disruptions of course offerings, discontinuities in departmental and student planning, and loss of graduate student advisors, are borne at individual, departmental and institutional levels (Ehrenberg, Kasper & Rees, 1991). Particularly at a research institution, the costs of hiring a new faculty member can exceed a half million dollars for laboratory equipment, space, and funding for graduate assistants as part of a start-up package (Harrigan, 1999). Since faculty intention is a precursor or predictor of actual faculty behavior and turnover, faculty institutional commitment and intention to leave become important objects of study.

This study regards research and doctoral institutions as one sub-group of postsecondary institutions for the following two facts:

1. These institutions are distinctively different from other types of institutions in the higher education system. Research is an important mission of them. They

are competing in one segment of academic labor market for faculty who have demonstrated strong research credentials or achievements.

2. As Figure **1-1** shows, the non-retirement turnover rates among these institutions are significantly higher than other types of institutions.

The purpose of this research is to investigate among the full-time faculty who work in research and doctoral institutions, what factors influence their turnover intentions and what are the implications for institutional policies and practices. Previous research has identified factors such as personal characteristics, organizational characteristics, work experience, work rewards, and job satisfaction that influence faculty departure intentions. Based on their meta-analysis of 120 studies of employee turnover, Cotton and Tuttle (1986) concluded that "…it is no longer valuable simply to link variables with turnover". Instead, they suggested that "What is needed is research that determines whether variables are causally linked to turnover, and how these links are moderated by other variables." (p. 66) This study not only explores the major predictors of faculty intention to leave but also the causal relationships among the identified predictors. It proposes a theoretical model of faculty turnover intentions and tests the model with the data drawn from NSOPF-99. Unlike the previous turnover models, this model takes into account the forces both inside and outside a faculty member's current institution. Therefore, the final path models are able to show, after controlling for external forces, how faculty's personal characteristics, institutional experiences and work experience influence their job satisfaction and eventually their intentions to leave.

Significance of the Study

The nation's college and university faculties occupy a strategically important place in contemporary society. They are an important national resource.

> The nation's faculties are entrusted with the education of about a third to a half of every age cohort of young people, and they touch the lives of millions of other persons in less intensive encounters. They train virtually the entire leadership of the society in the professions, government, business, and, to a lesser extent, the arts. Especially, they train the teachers, clergy, journalists, physicians, and others whose main function is the informing, shaping, and guiding of human development. The nation depends upon the faculties also for much of its basic research and scholarship, philosophical and religious inquiry, public policy analysis, social criticism, cultivation of literature and the fine arts, and teaching consulting. The faculties through both their teaching and research are enormously influential in the economic progress and cultural development of the nation. In short, the faculties are a major influence upon the destiny of the nation, and the nation has a clear and urgent interest in assembling and maintaining faculties having adequate numbers of talented, well-trained, highly motivated, and socially responsible people (Bowen & Schuster, 1986, p. 3).

Faculty turnover plays an important role in academic management and planning. Colleges and universities should recognize the factors that may be causing faculty attrition and make faculty salaries and working conditions competitive to assure the recruitment and retention of genuine talent (Bowen & Schuster, 1986).

This study examined how the differences in expressed intention to leave relate to the working conditions, performance, and reward systems. The path models show how the effects of individual characteristics (i.e., gender, ethnicity, career stage, and educational attainment), organizational characteristics (institutional control, size, wealth, diversity, policies, and degree of unionization), and faculty work experience (workload, compensation, and productivity) are mediated by faculty members' satisfaction with their

institution, their career/work, and their rewards, and thus, ultimately influence their departure intentions. The study represents the first attempt to simultaneously examine the forces within and outside one's institution. It uncovers the direct effect of seniority and indirect effects of compensation on intentions to leave. It identifies five external "pull" factors but only finds one factor, extrinsic rewards, to be significantly related to intended departure. Using the results, policymakers can improve retention rate of high quality faculty by improving campus climate, changing financial or personnel policies, increasing faculty compensation or using merit pay, reassigning faculty workload, and providing incentives on teaching, research or service. These policies can be implemented at institutional level or at departmental level. The results of this study will provide empirical support for scholars, institutional researchers and planners, and campus and system executives when they make institutional/departmental policies.

Chapter 2

Literature Review and the Conceptual Framework

Employee voluntary turnover has long been a central focus among researchers (Lee & Mitchell, 1994). Vandenberg and Nelson (1999) observed that most studies suggest that turnover is motivated by the dissatisfaction of (1) the individual with some aspects of work environment including the job, co-workers, or organization, or (2) the organization with some aspects of the individual, such as poor performance or attendance. Although some forms of turnover can help organizations to get rid of poorly performing employees (Dalton, Todor, & Krackhardt, 1982) or to trade high-price talent with low-price talent (Roseman, 1981), most practitioners and researchers use the term to refer to the loss of valued employees, and thus, as a negative index of organizational effectiveness (Staw, 1980; Vandenberg & Nelson, 1999). Voluntary turnover can induce potential costs to organizations in terms of loss of valuable human resources and disruption of ongoing activities (Cascio, 1991; Trevor, Gerhart, & Boudreau, 1997).

In their classic study, Caplow and McGee (1958) examined how and why vacancies occurred in the liberal arts departments of major universities. They found that resignations or voluntary terminations accounted for 57 percent of the total mobility in the sample. The voluntary termination occurred (1) because of discontent and discord within the department, (2) upon the reception of an unbeatable offer, (3) through a "drifting away" process, and (4) for nonacademic, personal reasons (p. 43).

March and Simon (1958) identified the following major elements involving an individual's decision to stay or leave a particular employment situation: (1) the individual's ease of movement, (2) the perceived desirability of moving to a new employment situation, (3) the balance of inducements and contributions that the individual rationalizes as what they are due based on the first two elements, and (4) the particular decision made by the individual to remain or to leave.

A carefully thought-out process occurs before a person's departure decision, during which the individual weighs career benefits and losses from such a career move. Rosenfeld and Jones (1988) noted that even within academia, people trade prestige for salary, rank, and other resources when moving among institutions. Such trade-offs would be even more complicated when moving out of academia. Some individuals often are not just following their own careers but are taking into consideration a spouse's career, children's education, and other personal factors. Many studies have focused on specific elements that contribute to a faculty member's departure or departure intentions. Studies on performance and productivity, work environment, faculty satisfaction, compensation, academic labor market, and personal characteristics have contributed to our understanding of faculty departure.

Turnover Intention

Turnover intention refers to an individual's own estimated probability that he/she is permanently leaving the organization at some point in the near future (Mobley, 1982; Mowday, Horner, & Hollingsworth, 1982; Vandenberg & Scarpello, 1990). Mobley

(1977) conceptualized intent to stay/exit the organization as the final stage in the psychological decision making process before leaving the organization. Since then, it has become the immediate precursor to actual turnover behavior in many turnover models (i.e., Hom et al., 1992; Mobley, 1982; Steers & Mowday, 1981) and has been regarded as the strongest predictor of actual turnover (Hom, Griffeth, & Sellaro, 1984; Mobley, et al., 1982; Smart, 1990; Steel & Ovalle, 1984).

Although turnover intention has represented one of the strongest predictors, the strength of its relationship to actual turnover behavior varies widely across studies (Steel, Shane & Griffeth, 1990; Vanderberg & Nelson, 1999). Steel et al (1990) reported that the corrected variance estimates range from 28% to 75%. Vanderberg and Nelson (1999) argued that high turnover intention does not automatically result in actual turnover behavior. Researchers need to take into account individuals' different motives for stating a high intention for leaving an organization. They regarded these motives as "…a function of the source for the individual's disaffection with the work environment." (p. 1316) They observed two types of motives: specific-motives refer to the specific areas in work that have high salience to the individual and are not being satisfactorily fulfilled, such as insufficient research resources; global-motives refer to organization's goals, values and culture which do not fit the individual's needs. People with global-motives are envisioned as possessing true high turnover intention. They will search for a more fitting work environment. Vanderberg and Nelson (1999) argued that turnover intention can be lowered if the source of individual disaffection is dealt with. One of the purposes of this study is to identify the sources of disaffection among the faculty and help institutions to remove those sources and increase retention of high quality faculty.

Factors that Influence Departure Intentions

Many studies have focused on specific elements that contribute to a faculty member's departure or departure intention. Studies on performance (Bycio, Hackett, & Alvares, 1990; McEvoy & Cascio, 1987; Williams and Livingstone, 1994), work environment (Brown, 1967; Bowen & Schuster, 1986; Cameron, Whetten, & Kim, 1987; Zammuto, 1986), faculty satisfaction (Bannister & Griffeth, 1986; Dalessio, Silverman, & Schuck, 1986; Hom et al, 1992; Volkwein & Parmley, 2000), compensation (Hagedorn, 1996; Herzberg, Mausner, & Snyderman, 1959; Moore & Amey, 1993; Tack & Patitu, 1992, academic disciplines (Biglan, 1973 a & b; Creswell & Bean, 1981; Smart & Elton, 1982; Stoecker, 1993), academic labor markets (Youn & Zelterman, 1988) and personal characteristics (Caplow & McGee, 1958; NCES, 1997 & 2001) all have contributed to our understanding of faculty departure.

Performance and Productivity

Some researchers reported that turnover decreases as performance increases. In their meta-analyses of performance and voluntary turnover, McEvoy and Cascio (1987), Bycio, Hackett and Alvares (1990), and Williams and Livingstone (1994) reported correlations of -.24, -.17, and -.16, respectively. However, Trevor, Gerhart and Boudreau (1997) argued that the relationship between employee performance and voluntary turnover is curvilinear, such that low and high performers exhibit greater turnover than average performers.

In academic settings, it is always a challenge to measure a faculty's performance and productivity because some academic outcomes are diffuse, intangible and hard to quantify (Hopkins, 1990; Mingle and Lenth, 1989). At the broadest level, productivity refers to the way in which a firm transforms inputs (e.g., labor and capital) into outputs (Hopkins, 1990). Hopkins (1990) identified both tangible and intangible inputs and outputs in colleges and universities:

1. Tangible inputs: such as student enrollment, faculty time, research grants, library holdings, and teaching and research equipment;
2. Intangible inputs: the quality of teaching/research assistants, faculty efforts;
3. Tangible outputs: student enrollment in courses, hours spent in class, and number of scholarly publications; and
4. Intangible outputs: quality of instruction, student cognitive growth, and quality of faculty scholarship.

Hopkins (1990) noted that because of the intangible aspects of academic productivity, "all efforts to date at specifying and estimating the higher education production function have provided only partial results" (p. 13). For the same reason, although we can identify some quantifiable aspects of faculty productivity, capturing the faculty productivity in its entirety is unlikely (Layzell, 1999).

What further complicates the problem is that faculty are expected to do three major activities at the same time – teaching, research and service. Evaluating one specific aspect of productivity without controlling for the other activities engaged in by the faculty provides an incomplete picture of faculty productivity (Layzell, 1999). In addition, increasing one type of productivity may come at the expense of the other

(Hopkins, 1990). Gilmore and To (1992) reported a trade-off between teaching productivity and research productivity. Assuming no increase in faculty resources, increased faculty productivity in undergraduate education may result in decreased productivity in graduate education and research activities.

Currently, most research has only touched a few measurable activities carried out by the faculty. For instance, Fairweather (1996), in his study of faculty teaching productivity, reported that "Faculty in 4-year institutions averaged 9.4 hours in class per week in 1987-88, generating 322 student contact hours per semester." (p. 31) He also used faculty's self-reported total publications for a career as a measure of faculty's research productivity. When exploring the relationship of faculty work and intent to leave, McGee and Ford (1987) found that the level of the faculty members' teaching responsibilities to be negatively related to faculty turnover intentions. Blackburn and Havighurst (1979) reported that the faculty who valued and were engaged in scholarly activities were most likely to remain at their institutions. However, these studies are criticized for using self-reported data and for incomplete estimation of faculty activities and working outcomes.

Career Stage

Baldwin (1990) identified four distinct phases of academic life from the time of career entry to retirement, which provide a basic foundation for understanding the evolving interests, activities, concerns and development needs of faculty members:

- Novice professors are those who have just entered the academic world. This entry period (lasting from one semester to several years) is a time of intense pressure, competing demands and considerable growth. If the early years as a professor are unsatisfying, these faculty can lose enthusiasm and may consider leaving the current institution or even academia (Baldwin, 1990).
- Early academic career refers to the period between career entry and full membership in the academic ranks. The professors have concrete goals – tenure and promotion. The desire for publication of respected articles, chapters, or a book, or for acquisition of a major research grant, often focuses the efforts of an early-career professor in research and doctoral institutions. However, this period has a "make-or-break" characteristic (Baldwin, 1990, p. 25). Tenure denial or possible tenure denial, individual-institution mismatch, and dissatisfaction with faculty career may trigger a person's departure intention.
- Midcareer is a very productive and rewarding phase, a time when professors enjoy maximum professional influence. Extrinsic goals, such as promotion to full professor, may direct faculty efforts during the early years of this period. Frequently, midcareer parallels the onset of a "career plateau" (Baldwin, 1990, p. 26). The faculty lack concrete goals and directions that have made early careers so exciting. For many academics, mid-career stimulates a period of assessment, when priorities and goals are reexamined. Ideally, a professor will identify new goals that can energize subsequent phases of his/her career.

- Late career refers to the period prior to retirement, when faculty gradually disengage from work. This period can be filled with paradox, a mix of positive and negative feelings. On one hand, most senior professors are satisfied with their achievements and status in their academic career (Baldwin and Blackburn, 1981; Echer & Williams, 1972; Ladd and Lipset, 1976). On the other hand, professors may feel increasingly out of touch with developments in a rapidly changing field. They may have concerns about retirement security – both financial and psychological.

Baldwin's career stage framework provides us with an important lens to study faculty's career evolvement. Each career stage poses distinctive challenges that significantly influence the goals, activities, efforts and concerns of a faculty member, which may eventually influence his/her departure intention. Caplow and McGee (1958) found different mobility of faculty with different academic rank: the mobility of assistant professors was the highest of all academic ranks and mobility of the associate professors was the lowest. They contended that for the assistant professor, both free and compulsory mobility are maximized. For the associate professor, both are minimized: the former by the advantages of immobility such as the chance of promotion, and the latter by the protection, such as the tenure system. NSOPF-93 shows that assistant professors, instructors, and lecturers were more likely than full professors to report they were very likely to leave their current job for a position outside postsecondary education (NCES, 1997).

Compensation

Faculty compensation is an important component of the faculty reward system. According to the American Association of University Professors' (AAUP) Annual Reports on the Economic Status of the Profession (2001), salary disadvantage of faculty relative to similarly educated professionals persists over years. The results from the Occupational Employment Statistics (OES) survey suggest that the average faculty member earns roughly 26 percent ($15,299) less than the average highly educated professional, indicating an approximate 25-30 percent pay gap between professors and other professionals. This report concluded that "Faculty are, at least on average, underpaid." (AAUP, 2001, p. 1) This salary gap, along with the growth of the private sector of the economy, has raised several concerns: (1) faculty members may leave their current schools for other institutions or nonacademic jobs which offer higher salary (2) there may be a decline in the number and quality of students who enroll in graduate programs and who will take academic positions upon graduation (3) within one institution, the salary gap between disciplines may keep growing. Institutions have been forced to raise salaries in high demand fields at the expense of salary increase for faculty members in other fields (Hansen, 1986).

Weimer (1985) surveyed tenured faculty members who resigned from the University of Minnesota and found that the probability of accepting an outside offer was positively related to the expected salary gain. Schuster and Wheeler (1990) contended that compensation is the second leading pressure for the faculty to leave their current institution or to leave academia altogether. Moore and Gardner (1992) listed salary as the

top fifth reason for a faculty member to leave Michigan State University. In one recent year, the University of Arizona, whose average faculty salaries at each rank was about at the mean of the average salaries across all public research and doctoral universities, lost 75 faculty members to other institutions in spite of the efforts it made to retain them with counter offers (Smallwood, 2001).

Ehrenberg (2002) reported a growing dispersion in average faculty salaries in recent years. He studied the employee continuation rate[1] of each institution using the salary data collected by the AAUP. He found that institutions with higher continuation rates tended to have higher average faculty salaries than their competitors. The magnitude of this relationship was largest for research and doctoral institutions. He used the continuation rate of associate professors as an indicator of voluntary turnover rate because associate professors seldom get fired or leave for tenure denial. Given the gap between average salaries in private and public sectors, he found the average continuation rate for associate professors at private research and doctoral institutions did exceed the average continuation rate for associate professors at public research and doctoral institutions in every year in the decade of the 1990s (Ehrenberg, 2002). Ehrenberg's continuation rate is different from the turnover rate reported by NCES (2001) (as shown in Figure 1-1). The turnover rate reported by NCES includes all the full-time instructional faculty, regardless of their academic rank and departure reasons (i.e., including both voluntary and involuntary turnover). The seeming conflicting reports on

[1] AAUP collects institutional level data on the number of full-time faculty in each rank in the previous year that the institution also employs in the current year, regardless of what their ranks are in the current year. This permits researchers to compute a continuation rate for faculty members in each rank in each institution.

turnover rates from NCES (2001) and on continuation rates from AAUP suggest again that salary alone does not account for the majority of departures in research universities. The faculty leave for other reasons as well.

Tenure

The Commission on Academic Tenure in Higher Education (1973) defined academic tenure as "an arrangement under which faculty appointments in an institution of higher education are continued until retirement for age or physical disability, subject to dismissal for adequate cause, or unavoidable termination on account of financial exigency or change of institutional program" (p. 256). The Commission identified three coordinate elements in a tenure system. First of all, tenure protects academic freedom since it frees a faculty member from restraints and pressures that otherwise would inhibit independent thought and action. Second, tenure represents a kind of communal acceptance into the professorial guild, acceptance by one's peers. Third, tenure provides job security to promote institutional stability and loyalty and to reward individual service and accomplishment.

For junior faculty, the tenure process is a long probationary period, as long as six years, in which they need to prove their worthiness to the institution and their scholarly excellence. Time pressures and conflicts are greatest in these years, when junior faculty strive to meet stated and unstated expectations of senior colleagues and to manage their personal lives simultaneously. While the institution develops and promulgates tenure policies and procedures, they are interpreted and acted on within each academic

department where the senior faculty make tenure recommendations. This power of senior faculty forces junior faculty to align their personal and professional interests to the senior faculty's demands. The conferral of tenure means that the institution has rendered a favorable judgment on the individual's professional fitness and excellence.

Tenure does not guarantee lifelong employment, but it provides a faculty member with job security (Baez & Centra, 1995). Defenders of the tenure system, such as McPherson and Winston (1988), argue that "The system of rigorous probation followed by tenure is a reasonable way of solving the peculiar personnel problems that arise in employing expensively trained and narrowly specialized people to spend their lifetimes at well-defined and narrowly specialized tasks." (1988, p. 175) In a survey conducted in 1969, it was found that tenured and non-tenured faculty displayed significant differences in their attitudes toward themselves, their colleagues, institution and profession. For instance, the non-tenured faculty member was more likely to think that he had no opportunity to influence the politics of his department or of the institution and that a small group of senior professors had disproportionate power in the decision-making process (the Commission on Academic Tenure in Higher Education, 1973).

Some researchers argue that the influence of tenure upon turnover rates does not appear to be high. For instance, Brown (1967) found that in markets of excess demand, tenure (and security) is not a major element in decisions to move and not to move. However, Smart (1990), in testing his causal model of faculty turnover, found three specific influences that differentially lead tenured and non-tenured faculty to decide to leave their current institutions. The first is gender: tenured male faculty are more inclined to leave than tenured women after controlling for all other variables in his

model. Salary is the second influence: although it is important for both tenured and non-tenured groups of faculty, it is especially important for non-tenured faculty. Last, Smart found that for tenured faculty, research time and research productivity exert greater influences on their intention to leave the current institution.

Work Environment

Based on a survey of about 10,000 faculty, Brown (1967) identified seven major factors influencing the departure decisions of faculty. All of them are closely related to the immediate work environment: competency of administrators, research facilities and opportunities, teaching loads, salary, courses taught, competency of colleagues, and congeniality of colleagues. Other research shows that faculty turnover is higher at institutions facing serious enrollment and financial difficulties (Cameron & Zammuto, 1986; Cameron, Whetten & Kim, 1987; Zammuto, 1986) and at those whose governance patterns tend to be of a more autocratic than democratic nature (Bowen & Schuster, 1986; Clark, 1987). Flowers and Hughes (1973) contended that faculty intention to leave is strengthened or weakened by the degree of compatibility between his/her own work ethic and the values for which the institution stands. The wider the gap, the stronger the intention to leave. Moore and Gardner (1992) examined 44 possible reasons for leaving Michigan State University and found the top four reasons were lack of research funds, lack of research opportunities, reputation of the department, and departmental leadership.

Workload

Most of the studies on faculty workload are based on self-reported data. Faculty members tend to report long working hours. A survey of professors at a large technical university found that the median workload is almost 60 hours per week, and more than 10 percent of faculty spend about 75 hours a week on professional work (Bailyn, 1993). Faculty's work time is fragmented among diverse and conflicting priorities. The mental requirements for research (concentration, uninterrupted periods of time, meeting productivity schedules for grants or publications) conflict with the expectations faculty face for being available to students and performing various service functions. Bailyn (1993) commented as follows:

> The academic career therefore is paradoxical. Despite its advantages of independence and flexibility, it is psychologically difficult. The lack of ability to limit work, the tendency to compare oneself primarily to the exceptional giants in one's field, and the high incidence of overload make it particularly difficult for academics to find a satisfactory integration of work with private life… It is the unbounded nature of the academic career that is the heart of the problem. Time is critical for professors, because there is not enough of it to do all the things their job requires: teaching, research and institutional and professional service. It is therefore impossible for faculty to protect other aspects of their lives. (p. 51)

Faculty workloads are exacerbated when their spouses also are professionals with the concomitant and compelling demands for commitment to a dual-career family.

Job satisfaction

Researchers have also explored the relationship between attitudes like job satisfaction and turnover intentions (i.e., Bannister & Griffeth, 1986; Dalessio, Silverman

& Schuck, 1986; Hom et al, 1992). Moore and Gardner (1992) argued that job satisfaction reflects how well a member has adjusted career aspirations to internal factors. A satisfied faculty member should be successful, and a successful faculty member should be satisfied (Cytrynbaum & Crites, 1988). Low job satisfaction can imply a misfit between a faculty member's personal goals and expectations with the institutional/departmental values and expectations. However, low job satisfaction can also signal institutional problems that may force a highly successful faculty member to pursue opportunities elsewhere (Nicholson & West, 1988).

Job satisfaction is multi-dimensional. Herzberg's Two Factor Theory (1966) draws our attention on both the intrinsic job content factors (i.e., feelings of accomplishment, recognition, and autonomy) and to the extrinsic factors (i.e., pay, security, and physical working conditions). Volkwein and his colleagues (1998) identified four dimensions of administrative satisfaction: intrinsic satisfaction reflecting feelings of accomplishment, autonomy, creativity, initiative, and challenges in job; extrinsic satisfaction reflecting one's attitude toward salary and benefits, opportunities for advancement, and future income potential; satisfaction with work conditions showing one's reaction to work hours, work pressure, job security, and organizational politics; and interpersonal satisfaction reflecting one's relationships with colleagues, faculty, and students. Employees may be satisfied with some components of their responsibilities or work environment but not satisfied with others. They can feel reasonably satisfied with the content of a job, but, at the same time, frustrated about their potential growth or mobility within the organization (Kanter, 1977).

The rewards of the academic profession are to an unusual degree intrinsic (Bowen & Schuster, 1986). They are inherent in the work itself (McKeachie, 1979). The intrinsic rewards include the satisfactions derived from intellectual curiosity, interest in ideas, exercise of rationality, opportunities for achievement and self-expression, fascination with complexity, ability to solve difficult problems, pleasure of expertness, and participation in decisions affecting one's life (Bowen & Schuster, 1986). The Higher Education Research Institute's (HERI) 1995-96 national survey of college and university faculty reported that 86% of faculty agreed that their greatest level of satisfaction came from work autonomy and independence. The most common sources of stress were time pressure, lack of a personal life, and managing household responsibilities. Women faculty experienced higher stress levels than men. About 92% of women faculty had experienced time pressure and about 90% of them reported a lack of personal life. Job satisfaction is closely related to one's morale, organizational commitment, and departure intentions (Bretz, Boudreau & Judge, 1994; Cotton & Tuttle, 1986; Smart, 1990).

Academic disciplines

The literature suggests three major influences of academic disciplines on faculty and their mobility: the first one is on their personal and educational backgrounds and world outlooks (Bowen & Schuster, 1986). Each discipline attracts individuals of particular talents and interests, and the experience of working in each field places its mark on their personalities. Ladd and Lipset (1975), in their extensive studies of the professoriate concluded, "... we commonly find greater differences of opinion among the

various scholarly disciplines than we can locate among the most grossly differential groups in the general public, such as rich and poor, young and old, and white and black." They showed several major divisions of faculty values and opinions in academic matters and in politics: the most liberal are those in social sciences, followed by faculty members in the humanities and the natural sciences, and the most conservative tend to be those in the applied professional fields.

The second influence is on faculty's work experience. Clark (1987) noted that faculty have dual loyalties to institutions and disciplines. Within each discipline, a unique subject matter defines the dimensions of knowledge, the modes of inquiry, the significant reference groups, the work experiences, and the rewards of the faculty within them. In Brown's (1967) study, he found that faculty in physics, engineering, and biology regarded "research facilities" as one of the most important factors in their job choice decision. However, this factor was not considered to be important for most faculty in humanities and social sciences. Eighty-five percent of faculty in biological sciences had published, compared with 61% in social sciences, 46% in foreign language and literature, and 32% in physical education. More faculty in English, music, physical and elementary education, and general biology and zoology reported that their primary activity was "teaching and counseling", while more faculty in physics, biochemistry, sociology, and economics indicated "research and writing."

The third influence is on employment opportunities – faculty are segregated in different labor markets according to their specialties. The demands of their services are different and changing overtime. Bowen and Schuster (1986) observed that, over the past 15 years, there were changes in demand for rapidly growing fields such as business

administration, engineering, and computer science and shrinking fields such as philosophy, anthropology, and history. Faculty in growing fields have more job opportunities both from other academic institutions and out of academia than those in shrinking fields.

Other Factors

Brown's (1988) early research showed different turnover rates for faculty from different ethnic backgrounds. In 1985, Black faculty accounted for the highest departure, 9.7%, followed by Asian-American faculty at 7.4% and by Hispanic faculty at 5.7%. There also appears to be an inverse relationship between faculty age and willingness to accept a non-postsecondary job (NCES, 1997). NSOPF-93 reports that the younger the full-time faculty, the more likely they were to cite that they would move to another full-time job outside of postsecondary education in the next three years. In the same study, a larger percent of full-time females (eight percent) indicated the possibility of a move out of postsecondary education for another full-time job than full-time males (five percent) (NCES, 1997). Other factors outside the work organization may also directly affect the intention to leave, such as financial responsibilities, family ties, friendships, and community relations (Flowers & Hughes, 1973).

Turnover Models

Zey-Ferrell (1982) stated that the major weakness of the various explanatory models of intent to stay/exit is their lack of inclusiveness. The models vary greatly in the variables they emphasize, and the variables deemed of major importance in one model are not even included in other studies. This lack of inclusiveness has made it impossible to assess accurately the relative explanatory power of the various determinants of intent to leave. Her comprehensive model proposes that nine types of predictor variables influence a faculty member's intent to leave. These include (1) personal traits, (2) early childhood parental influence and socialization, (3) higher education socialization, (4) occupational status, (5) personal values, (6) general attitudes, (7) professionalism, (8) dissatisfaction with the employing organization, and (9) support for collective bargaining. In a stepwise multiple regression analysis, she found that the attitudinal support for collective bargaining, dissatisfaction with the employing organization, age, sex, and selected measures of professionalism contributed substantially to departure intention. Zey-Ferrell (1982) verified the need for a more comprehensive model of intent to leave; however, she only tested the direct effects of the causal factors on the departure intentions. The indirect effects, the influences of each predictor variable on the dependent variable mediated through intervening predictors in the model, were neglected.

Johnsrud and Rosser (2002) proposed a multilevel structural model which tests the effects of workplace variables on faculty morale and intent to leave. Their model also simultaneously defines the multidimensional constructs such as worklife and morale. Worklife is composed of three broad constructs: professional priorities and rewards (i.e.,

collegial relations, students, rewards and evaluation, and professional worklife), administrative relations and support (i.e., advocacy for faculty, confidence in leadership, and faculty governance), and quality of benefits and services (i.e., support services and the standard of living). Faculty members' perceptions of their worklives result in attitudinal outcomes – morale. Morale is defined as the level of well-being that an individual group is experiencing in reference to their worklife (Johnsrud, 1996; Johnsrud & Rosser, 2002). It includes three dimensions: faculty's engagement in their work, their sense of institutional regard, and their personal sense of their own well-being (self-reported morale level). The authors also conceptualized intent to leave as the composite of responses to three questions about faculty members' intentions to leave their position, their institution, or the profession.

The model conceptualizes and measures faculty worklife, morale, and intent to leave at both the individual level and institutional level. For each level, faculty's perceptions on worklife are hypothesized to influence faculty morale, and both perceptions and morale subsequently affect their intentions to leave. Johnsrud and Rosser (2002) then tested the model using 1,511 faculty members employed in a 10-campus system of public higher education in a western state university. At the individual level, they controlled for sex, minority status, faculty rank, type of appointment, appointment period, and years worked at the campus. They found the effect of perceptions on faculty worklife was mediated by morale. It is the level of morale that matters most to the intent to leave at the individual level. At the institutional level, they examined institutional resources, size, and control but found none of them to be significantly related to differences in intent to leave across institutions. They found that

organizations differ in the quality of their worklife experiences and the level of faculty's morale, and these differences lead to greater or lesser intent to leave.

The Conceptual Framework

This research focuses on the dynamics of faculty satisfaction and intention to leave as an important institutional outcome and predictor of faculty turnover. It examines the predictors of faculty intent to leave among a representative sample of faculty at research and doctoral institutions across an array of disciplines. The conceptual framework derives its elements from the causal models suggested by Smart (1990) and Matier (1990) with complementary concepts from the human resources and business literature.

Smart's Model of Faculty Turnover Intentions

Smart's (1990) causal model contains components of models of employee turnover developed by economists, psychologists, and sociologists and variables that have been found to be associated with faculty turnover intentions and behaviors (Mobley, Griffeth, Hand & Meglino, 1979; Muchinsky & Tuttle, 1979; Porter & Steers, 1973; Baldwin & Blackburn, 1981; Caplow & McGee, 1958; McGee & Ford, 1987). He believes that employee turnover has at least three major sets of determinants: individual characteristics reflecting demographic and work factors (e.g., age, gender, educational

level, distribution of time across job responsibilities), contextual variables reflecting individuals' stature in and adjustment to the work environment (e.g., salary, influences, organizational and career satisfaction), and external conditions (e.g., employment perceptions, economic and societal conditions).

Smart's model contains three sets of variables: exogenous variables, endogenous variables, and satisfaction variables. Exogenous variables include five individual characteristics of faculty (i.e., career age, gender, marital status, research time and teaching time) and two organizational characteristics (i.e., organizational decline in the aspects of enrollment and financial condition, and campus governance). They are assumed to influence the first block of endogenous variables in the model that represents contextual measures of faculty work environments: participation in the campus governance process, perceived influence in governance issues, research productivity, and salary. These two blocks of variables subsequently influence the three dimensions of faculty job satisfaction that comprise the third block of variables in the model: organizational satisfaction, salary satisfaction and career satisfaction (Cotton & Tuttle, 1986).

The dependent variable in the model is the intention of faculty to leave their present institutions for another position for either an academic or nonacademic setting, and is seen to be causally dependent on all preceding variables. It is assumed that the three job satisfaction measures exert the strongest direct influences on faculty intentions to leave, and the variables earlier in the model exert indirect influences.

Smart (1990) then tested this model using the data from the 1984 national survey of faculty conducted by Carnegie Foundation for the Advancement of Teaching. He

found that, regardless of tenure status, faculty who were younger, faculty who were working at institutions that had experienced enrollment decline and financial difficulties, faculty whose institutions had more autocratic forms of governance, and faculty who had lower levels of organizational and career satisfaction were more likely to leave their institutions. Being a male, spending more time on research, and having a stronger record of scholarly productivity were positive influences on the intentions of tenured faculty to leave their institutions. Salary satisfaction was an influential variable only for non-tenured faculty.

Smart's study did not examine the labor market outside the institution and the academy, especially the external "pull" factors as identified by Matier (1990). He used Biglan's (1973 a&b) classification of academic disciplines and tested the relationship between academic affiliation and turnover intentions. He found the relationship was not significant; therefore, academic affiliation was not included in his following analyses. Biglan (1973 a&b) identified three dimensions, the hard-soft dimension, the pure-applied dimension, and the life-nonlife dimension, which characterize and distinguish the subject matters and the cognitive styles of the academic disciplines. Although this classification system has been replicated and validated by a number of researchers (Creswell & Bean, 1982; Smart & Elton, 1982; Stoecker, 1993), whether this classification can be used as a framework to test faculty turnover intentions and departure behaviors remains to be examined. One may argue that it is the segmented external labor market, as represented by academic discipline, that confines faculty's mobility, rather than the subject matters or cognitive styles of academic disciplines influencing faculty's turnover behaviors.

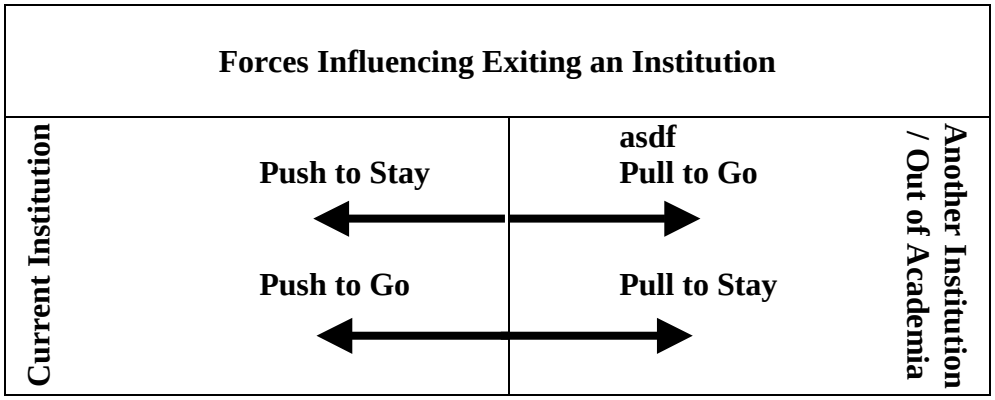
Another limitation of Smart's model is that all the variables included are work-related. Non-job related variables are neglected.

Matier's Push-Pull Model

Drawing most heavily on the work of March and Simon (1958) and Flowers and Hughes (1973), Matier (1990) proposed that both internal and external environmental factors are critical in an individual's final decision to leave. The internal environmental factors consist of two main types: intangible benefits of the job (i.e., personal and institutional reputation, autonomy, influence, and sense of belonging) and tangible benefits of the job (i.e., wages, facilities, work rules, and fringe benefits). The external environmental factors are nonwork-related benefits such as quality of life, family, friends, and nonjob-related financial considerations. Based on the relationship between the internal and external environments, only those individuals with a perception of low internal and external environmental benefits were expected to perceive a desirability of moving and potentially terminate their present employment situation. The other three possible combinations represent individuals who are more likely to remain in their present position.

Matier used a push-pull metaphor to explain how faculty exit from an institution. Moore and Gardner (1992), in their study on faculty job satisfaction and mobility at Michigan State University, further explained how the push-pull forces exert pressures that work against each other (Figure **2-1**):

Figure 2-1: Push-Pull Forces



(Adopted from Moore and Gardner, 1992, p. 3).

These pushes and pulls are intentionally and unintentionally created by the faculty members' employing institutions, and by other higher education institutions and the private sector that extend serious offers to faculty members (Vander Putten & Wimsatt, 1998). A pull from a private company may be higher salary while the push keeping one in the current institution may be spouse's career and/or children's education. Similarly, lack of research facilities and support may be an internal push to leave, while the geographic location and a high cost of living of the new place may be an external pull to stay. In the decision-making process, a faculty member takes into consideration a number of factors. As Vander Putten and Wimsatt (1998) observed, it takes more than one overpowering pull or a strenuous push; "… rather it is an accumulation of pushes and pulls, that build up, allowing a final push or pull to cause movement." (p. 5)

Matier (1990) investigated how the tangible, intangible and nonwork-related benefits influenced the decisions of 239 tenure-stream faculty at two universities. These faculty had firm opportunities to leave their respective universities during academic year 1987-88. He found intangible benefits account for at least half of the top ten benefits

either to stay or to leave. Intangible benefits such as “research opportunities,” “reputation of associates,” and “congeniality of associates” were in the top ten ranked factors of both push and pull categories at each institution. Tangible benefits were more prevalent in the top ten factors to leave than in the top ten factors to remain. For faculty who left these institutions, the often-cited external pulls were “cash salary,” “income potential,” and “benefit package.” Matier also concluded that although both push and pull factors play a part in an individual’s decision-making process, the internal push is more operative than the external pull in an individual's decision. “Without strong internal pushes to invite individuals seriously to consider external offers, lavish external pulls are typically not sufficient in and of themselves to disengage a faculty member.” (Matier, 1990, p. 58)

The Proposed Model of Faculty Turnover Intentions

Despite the importance of faculty retention, there is little understanding of how demographic, structural, perceptual, and attitudinal variables interact to explain faculty intentions to leave (Johnsrud & Rosser, 2002). Figure 2-2 shows the causal model proposed in this study. It extends Smart’s model by including a larger array of personal characteristics (like family SES, and ethnic minority), institutional characteristics (like public/private, enrollment size, wealth, diversity, and unionization), and external factors (like perceived research opportunities, teaching opportunities, extrinsic rewards, and family considerations). It extends Matier’s model, first by using a representative national population of thousands of faculty at hundreds of universities, and second by

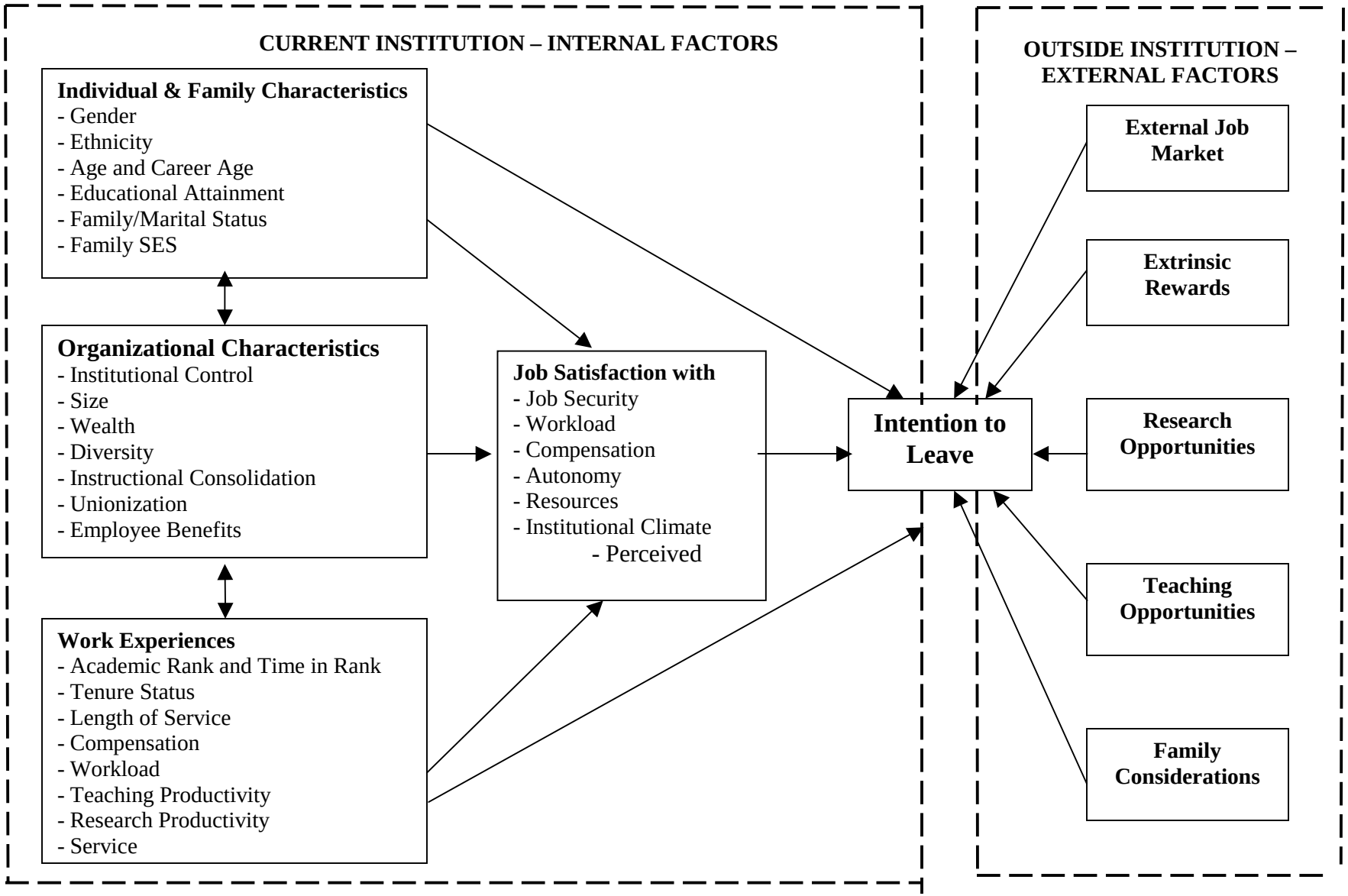
incorporating a larger selection of personal, institutional, and work experience variables. It is comprised of two parts – internal forces and external forces. The model suggests that both internal and external forces influence faculty's intention to leave their current job. The focus of the model is on internal ones within the current institution, which are regarded as the major reasons for faculty members to leave (Caplow & McGee, 1958; Gartshore, Hibbard, & Stockard, 1983; Matier, 1990; Toombs & Matier, 1981).

The Internal Factors

Faculty are pushed to stay/leave the current institution by a number of internal forces. Three major clusters of factors, organizational factors, individual characteristics factors, and job-related factors are hypothesized to influence faculty job satisfaction, which in turn influence faculty's intention to leave.

The organizational variables include institutional control, institutional type, institutional size, wealth and diversity, level of unionization, financial/personnel policies, and employee benefits. Most of these variables are borrowed from Smart's (1990) model. Financial/personnel policies are added to the framework because previous research showed that dissatisfaction with organizational policy is related to intentions to leave (Bretz, Boudreau & Judge, 1994). Personal characteristics include gender, ethnicity, educational attainment, age, marriage status, and family financial situation. Institutional experiences reflect one's workload, productivity and rewards, such as tenure, academic rank, and compensation.

Figure 2-2: The Theoretical Model of Faculty Departure Intentions



Personal characteristics of a faculty member include variables such as gender, ethnicity, educational attainment, age, career age, family/marriage status and family social economic status (SES). Institutional experiences reflect one's workload, productivity and rewards, such as tenure, academic rank, and compensation. NSOPF-93 revealed that age, education, and work experience differed by gender and ethnicity among postsecondary faculty (NCES, 2000). Nationwide, female faculty had lower educational levels and less experience than male faculty. Female faculty spent larger proportions of their time in teaching and service activities and smaller proportions in research or administrative activities than male faculty. On average, female faculty had lower academic rank, fewer publications, and lower salaries than male faculty. But they reported higher family responsibilities than their male colleagues. Among ethnic groups, black full-time faculty were less likely than white faculty to have higher salaries, tenure, and full professorships. White and Asian faculty had higher educational attainment, more experience, and were more likely to be engaged in research or similar scholarly activities than black and Hispanic faculty. Therefore, the conceptual framework proposes that institutional characteristics, personal characteristics and work experiences are associated with each other.

The three blocks of exogenous variables on the left side of Figure 2-1 directly influence one's job satisfaction and perceptions of organizational environment. Job satisfaction is multi-dimensional, including satisfaction with job security, autonomy, workload, instruction and research resources, and compensation. Perceptions refer to gender and ethnical climate on campus and institutional decline. These satisfaction

variables, along with the previous ones in the model, influence a faculty member's intention to leave the current institution.

Smart's model (1990) assumed that job satisfaction variables exert direct effects on departure intentions, while individual characteristics, institutional characteristics, and work experiences variables only exert indirect effect on departure intentions. This model, however, does not make such strong assumptions. Instead, all the exogenous variables are hypothesized to directly influence faculty job satisfaction and intentions to leave. In other words, the exogenous variables are hypothesized to have both direct and indirect effects on the dependent variable.

The External Factors

There are five major external factors: external job market, extrinsic rewards (e.g., salary and benefits, opportunities for advancement), research opportunities, teaching opportunities and other family considerations. A faculty member enters an institution with his/her own personal characteristics. Through work, the faculty member forms his/her level of satisfaction with the current job and the dissatisfactions in work cause his/her departure intention. At this moment, the external factors come into play. The faculty member compares the benefits of departure with the benefits of staying in the current position. The external factors either strengthen or weaken intentions to leave. The main purpose of this study is to examine the direct and indirect influences of all these variables on faculty intention to leave.

Chapter 3

Methodology

Research Questions and Hypotheses

Using the above conceptual framework, the study attempted to answer the following research questions:

Broad Questions: In research and doctoral institutions, what personal characteristics, institutional characteristics and work experience factors influence different dimensions of faculty's job satisfaction? What factors influence faculty's departure intentions? What are the causal relationships among the factors? What are the direct and indirect effects of the causal variables on intent to leave? And what can the institutions do to improve their retention of the high quality faculty?

Specific Questions: What was the general level of departure intention among the instructional faculty who were working in research and doctoral institutions during 1998-99? Did the intention levels vary by personal characteristics (i.e., gender, ethnicity, academic rank, tenure status, educational attainment, and academic disciplines), by institutional characteristics (i.e., institutional policies, unionization), by workload, performance and compensation? What factors within the employing institutions were significant to faculty departure intention? What external factors were considered to be

very important for faculty to make their decisions? From these research questions, the following hypotheses are derived:

1. Personal Characteristics and Intention to Leave

H_{1a}: Female faculty have stronger intentions to leave than male faculty.

H_{1b}: Minority faculty have stronger intentions to leave than non-minority faculty.

H_{1c}: Faculty without doctoral or professional degrees have stronger intentions to leave than faculty with doctoral or professional degrees.

H_{1d}: Single faculty have stronger intentions to leave than married faculty.

H_{1e}: Faculty with heavier financial stress have stronger intentions to leave.

2. Institutional Characteristics and Intention to Leave

H_{2a}: Faculty working in public institutions have stronger intentions to leave than faculty in private institutions.

H_{2b}: Faculty working in bigger institutions have stronger intentions to leave than faculty in smaller institutions.

H_{2c}: Faculty working in poorer institutions have stronger intentions to leave than faculty working in wealthier institutions.

H_{2d}: Faculty working in more ethnically diversified institutions have stronger intentions to leave than faculty working in less ethnically diversified institutions.

H_{2e}: Faculty whose institutions provide poor employee benefits have stronger intentions to leave than those faculty whose institutions provide good employee benefits.

H_{2f}: Faculty working in non-unionized institutions have stronger intentions to leave than faculty working in unionized institutions.

H_{2g}: Faculty whose institutions are taking actions to replace full-time faculty with part-time faculty have stronger intentions to leave.

3. Work Experience and Intention to Leave

H_{3a} : Junior faculty have stronger intentions to leave than senior faculty.

H_{3b} : Faculty who have heavier workload have stronger intentions to leave.

H_{3c} : Faculty who have higher level of teaching productivity have stronger intentions to leave.

H_{3d} : Faculty who have higher level of research productivity have stronger intentions to leave.

H_{3e} : Faculty who are more involved in administrative services have stronger intentions to leave.

H_{3f} : Faculty who receive lower compensations from their institutions are more likely to leave.

4. Job Satisfaction and Intention to Leave

H_{4a} : Faculty who are less satisfied with their job security have stronger intentions to leave.

H_{4b} : Faculty who are less satisfied with their compensations and employee benefits have stronger intentions to leave.

H_{4c} : Faculty who have a higher level of workload have stronger intentions to leave.

H_{4d} : Faculty who have a lower level of job autonomy have stronger intentions to leave.

H_{4e} : Faculty who are less satisfied with teaching and research resources have stronger intentions to leave.

H_{4f} : Faculty who feel a “chilly” institutional climate have stronger intentions to leave.

H_{4g} : Faculty who perceive their institutions as less effective have stronger intentions to leave.

5. External Factors and Intention to Leave

H_{5a} : External job market is a significant external force that pulls faculty away from their current institutions.

H_{5b} : Research opportunity is a significant external force that pulls faculty away from their current institutions.

H_{5c} : Teaching opportunity is a significant external force that pulls faculty away from their current institutions.

H_{5d} : Extrinsic reward (such as salary, benefits and opportunities for advancement) is a significant external force that pulls faculty away from their current institutions.

H_{5e} : Family consideration is a significant external force that pulls faculty away from their current institutions.

Data

This section describes the dataset, variables and statistical methods used to answer the research questions. To test the hypotheses, the study drew upon the data from 1999 National Study of Postsecondary Faculty (NSOPF-99), which was sponsored by the National Center of Educational Statistics (NCES). NSOPF-99 has two parts: an institution survey and a faculty survey with a sample of 960 degree-granting colleges and universities and 28,704 faculty and instructional staff. The faculty survey gathered information regarding backgrounds, responsibilities, workloads, salaries, benefits, attitudes, and future plans of both full and part-time faculty. The institution survey collected information at the institutional level on such issues as faculty composition, turnover, recruitment, retention, and tenure policies. Only full-time instructional faculty in research and doctoral institutions were included in the analyses.

Sample Design

A two-stage stratified clustered probability design was used to select the NSOPF-99 sample. The institution universe for the survey includes all Title IV degree-granting not-for-profit institutions in the United States. According to NCES Integrated Postsecondary Education Data System (IPEDS), 3,396 institutions were eligible for the NSOPF-99 sample. The faculty universe includes not only regular full-time and part-time faculty, but also administrators and other staff who had instructional responsibilities at the eligible institutions.

At the first stage of stratification, the eligible institutions were classified into eight strata based on the 1994 Carnegie Classification of Postsecondary Institutions. Research and doctoral institutions formed one stratum. Since there are only 235 such institutions nationwide, all of them were selected for the second stage of sampling. Like the other 725 institutions, they were asked to complete an institution survey and to provide a list of all the instructional faculty that the institution employed during the 1998 fall semester. A total of 819 institutions provided a faculty list for a weighted participation rate of 88.4 percent. 208 research and doctoral institutions completed the institution questionnaire and 208 provided lists of eligible faculty. 199 institutions did both, and they were included in this study.

At the second stage of sampling, the faculty at these institutions were grouped into five strata based on their gender and ethnicity:

1. Hispanic faculty
2. Non-Hispanic Black faculty

3. Asian and Pacific Islander faculty
4. Full-time female faculty (who were not Minority) and
5. All other faculty

The first four subgroups were over-sampled to increase the precision of estimates for these groups. Initially 28,576 faculty were sampled, and later the number was reduced to 19,813. Among them, 17,600 completed the faculty survey for a weighted response rate of 83%.

This study merged institution data and faculty data. Part-time faculty and those instructors who had no faculty status or whose primary activity was not teaching or research were excluded. The study also excluded those faculty who had already retired (professor emeritus) and who were very likely to retire in the next three years. These steps yielded a sample containing 3530 valid cases for analyses.

Sample Weights and Design Effects

NSOPF-99 used complex sampling which included stratification, multiple stages of selection and unequal probability selection of respondents. The minority and female faculty were over-sampled in order to collect enough cases for specific analyses. This study used weighted data for analyses because the unweighted sample is not representative of the population (NCES, 2002). Unweighted estimates reflect the NSOPF-99 sample; weighted estimates reflect the national population estimates that are derived from the sample. Thus, the unweighted sample will bias toward minority and female faculty. NCES has provided raw faculty weights which “incorporates factors

reflecting the conditional selection probability for the faculty member given the selection of his or her institution, the probability of retention into the subsample, faculty nonresponse, and random departure from the best available estimates of the total number of full- and part-time faculty at various types of institutions" (NCES, 2002, p. 37-38). Summing the raw weight (w_i) across all cases yields the population size N (i.e., the total number of faculty):

$$\sum_{i=1}^{n} w_i = N$$

However, when the raw weights are used, standard statistical software, such as SPSS, is fooled into believing that the sample size is the same as the population size N (Thomas & Heck, 2001). This will lead to incorrect estimation of standard errors and incorrect hypothesis testing results – almost every difference or coefficient becomes statistically significant. Therefore, it is necessary to transform the raw faculty weight into relative weight ($rewt_i$) by dividing the raw weight by its mean:

$$rewt_i = w_i / \overline{w}$$

where $\overline{w} = \sum w_i / n$.

Using relative weight only partially corrects for the unequal probability selection problem in sampling design of NSOPF-99. Standard statistical software, such as SPSS, is based on simple random sampling (SRS). However, NSOPF-99 used a multistage cluster sample – the faculty were clustered within the institutions. Faculty within institutions may be more similar than faculty across institutions. When such homogeneity within the clusters (i.e., intracluster homogeneity) exists, SPSS will underestimate variances and

standard error values even after using relative weight (Thomas and Heck, 2001). The ratio between the sampling variance of complex sample and that of the simple random sample (SRS) is called design effect (*DEFF*):

$$DEFF = \frac{Var_{complex}}{Var_{SRS}}$$

where $Var_{complex}$ is the sampling variance of complex sample; and Var_{SRS} is the sampling variance of simple random sample (SRS). The average design effect of NSOPF-99 is 2.45 (NCES, 2002). This means, on average, the actual variance of a statistic is 2.45 times as big as the estimated variance obtained from the formula for simple random samples. Therefore, the relative weight needs to be further adjusted by the average design effect:

$$deffwt_i = \frac{1}{deff} * rewt_i$$

This weight is used in the analyses. In summary, the 3530 cases from 199 institutions in the dataset represent 172,839 full-time instructional faculty from 235 research and doctoral institutions nationwide.

Variables

For a complete list of variables, please refer to Table **3-1** at the end of this chapter. It provides a descriptive summary of the variables included in this study, the source of information (either from the NSOPF Survey or from the Integrated Postsecondary Education Data System [IPEDS]), and the factor loadings and alpha when

applicable. Table 3-2 (also at the end of this chapter) presents the descriptive statistics for the variables such as percentages, means, and standard deviations.

Dependent Variable

The dependent variable "intention to leave" is captured by Question 67 in the survey. The faculty were asked to report, in the next three years, how likely they would:

1. Accept a part-time job at a different postsecondary institution
2. Accept a full-time job at a different postsecondary institution
3. Accept a part-time job not at a postsecondary institution
4. Accept a full-time job not at a postsecondary institution

These four items represent two types of intended departure: leaving for another institution versus leaving higher education. This study does not distinguish between these two types of departure because it attempts to find out what factors contribute to the overall level of departure intentions rather than the type of departure. Thus, an ordinal variable was created for each item:

0 = not at all likely

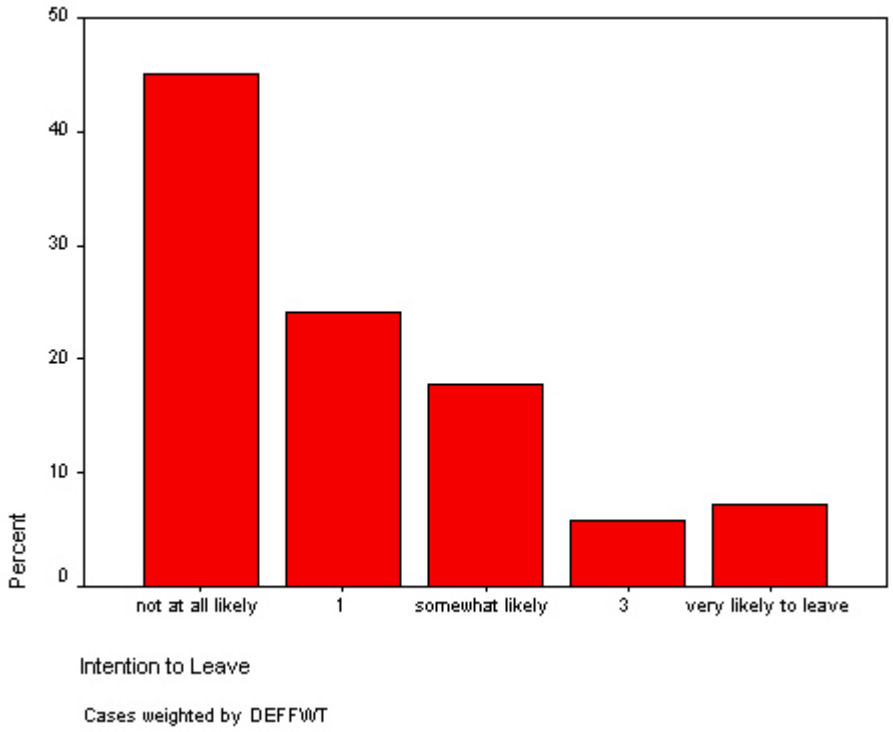
1 = somewhat likely, and

2 = very likely

The researcher summed each faculty member's responses to the four items. The faculty with a score of 4 or greater were given a value of 4. They have the strongest departure intention – even willing to take a position outside academia. Thus, a five-point scale (ranging from 0-4) was created to reflect each person's intention to leave, and the

distribution of this variable is shown in Figure 3-1. About 46% of the faculty do not intend to leave at all, compared with 7.3% who are very likely to leave.

Figure 3-1: Percentage Distribution of the Intended Departure (Full-time Instructional Faculty in Research & Doctoral Institutions)



Personal Characteristics Variables

Several personal characteristics variables were examined in this study, including gender, race, age, educational attainment, career age, family status and family SES. Each variable corresponds to a single item or multiple items in the NSOPF-99 survey. The corresponding survey item number is shown in the parentheses.

Gender (*Q81*[2]): a dichotomous variable, female was coded as 1 and male as 0.

Minority (*Q83* and *Q84*): a dichotomous variable. Minorities (Blacks, Hispanic, Asian, and American Indian) were coded as 1; and White was coded as 0.

Age (*Q82*): a continuous variable, reflecting the faculty's age in 1999.

Educational Attainment (*Q16A1*[3]): this variable reflects whether a faculty member holds a doctoral or first professional degree as self-reported by the faculty. Since the target faculty are working in research and doctoral institutions, very few of them hold a degree lower than the master's. Doctoral or first professional degree was coded as 1; less than doctoral degree was coded as 0.

Career Age (*Q16B1*): it reflects how many years it has been since a faculty member received his/her highest degree. It was derived from Question 16B1 – the year a faculty member received his/her highest degree.

Family/Marital Status (*Q80* and *Q87*): this derivative variable was created by combining responses to Q87 (current marital status) and Q80 (number of dependents). This nominally scaled variable has the following values:

1 = single without dependents

2 = single with dependents

3 = married without dependents

4 = married with dependents

[2] Q81 means this variable is based on Question No. 81 of the Faculty Survey.
[3] The variable is based on Question No. 16, Item A1 of the Faculty Survey.

Family SES (*Q79* and *Q78*): this variable was created by dividing a faculty member's total household income by the total number of persons in one's home. It shows the average income per household member.

Organizational Characteristics Variables

Institution Control (from IPEDS[4]): a dichotomous variable, 0 = public institution, 1 = private institution.

Institution Size (from IPEDS): total student enrollment, including both full-time and part-time students.

Institution Wealth (from IPEDS): this variable was created by dividing the total educational and general expenditures of an institution by its total enrollment.

Institution Diversity (from IPEDS): this variable was created by adding all the percentages of minority enrollment in that institution. The minority students include American Indian/Alaska Native, Asian/Pacific Islander, Black, and Hispanic students.

Unionization (*Q15**[5]): self-reported from the institution. It reflects the percentage of full-time faculty and instructional staff in the institution who are legally represented by a union for purposes of collective bargaining.

Instructional Consolidation (*Q3A**): is a four-item scale, reflecting institutional policies and practices to consolidate instruction and to decrease the number of full-time

[4] This information was not obtained from the NSOPF-99 survey. Instead, it was obtained from the NCES Integrated Postsecondary Education Data System (IPEDS).
[5] "*" means this question is from NSOPF-99 Institution Survey.

instructional faculty. The institutions were asked to report whether they had adopted any policy to increase class size, to increase faculty course load, to replace full-time faculty with part-time faculty, or to reduce course/program offerings. The scale has an Alpha = .794.

Employee Benefits (*Q11*, Q12** and *Q13**): this variable reflects the benefits options available to faculty. These benefits include health and life insurance, retirement plans, child care, paid maternity/paternity leave, paid sabbatical leave, tuition remission, wellness or health program, transportation/parking, housing programs and other kinds of employee assistance program. This variable reflects the availability of each option to the faculty and the degree of subsidization provided by the institution:

0 – specific benefit not available in this institution

1 – benefit available but not subsidized by the institution

2 – benefit available and partially subsidized by the institution, and

3 – benefit available and fully subsidized by the institution.

Workload, Productivity and Rewards

The downside to faculty activity studies is in their reliance on self-reported data. While some researchers have argued that the consistency in the findings of faculty activity studies over time lend validity to such data (Jordan, 1994), critics of such data note that it may result in inflated estimates of how much time faculty actually do spend at work or in the distribution of time among their various activities, and thus tend to give low weight to the validity of self-reported data (Miller, 1994; Jordan, 1994).

Another problem involves how to measure faculty productivity. No algorithm is available to provide a reliable estimate of faculty productivity in teaching, research or service (Layzell, 1999). For instance, NSOFP-99 asked faculty to report how much time they spent in classroom each week. But it did not account for the time spent in preparing for that class, the time spent with students outside of the classroom, or other instruction-related activities. No information was available to assess the quality of faculty teaching or service activities. For research productivity, the Survey did ask faculty to report how many articles they published in refereed professional journals. However, this item alone is inadequate to assess a faculty's quality of scholarship.

Finally, ten variables were selected to reflect one's workload, productivity and rewards. Both explorative and confirmative factor analyses were used and four variables were identified to assess one's teaching, research and service productivity. Further tests showed that six variables, age, career age, tenure status, academic rank, time in rank and length of service, were highly correlated. Therefore, a factor called "seniority" was created and used in the following analyses.

Tenure (*Q10*): indicating the tenure status of a faculty member during the 1998 fall term. The tenured faculty were coded as 1. The non-tenured faculty, including untenured assistant professors and the faculty who are not on tenure track or whose institutions do not have a tenure system at all, were coded as "0"

Rank (*Q8*): this nominally scaled variable has the following values:

1 – Instructor / lecturer or the equivalent (e.g., post-doctorate, teacher)

2 – Assistant professor or the equivalent (e.g., research associate or assistant)

3 – Associate professor or the equivalent (e.g., research fellow, scientist) and

4 – Professor or the equivalent (e.g., chairperson, director/head/coordinator/ executive).

Time in Rank *(Q9)*: reflects how long the faculty member has been in this rank/title.

Length of Service *(Q7)*: this variable reflects how long a faculty member has been working for the current institution. Promotion in rank is considered as part of the same job.

Seniority: a six-item factor, reflecting a faculty member's seniority in age and in career, including:

a. Age
b. Career age
c. Tenure status
d. Academic rank
e. Time in rank
f. Length of service at current institution

Workload (*Q30*): is measured by average hours working per week. The faculty were asked to report how many hours they spent at different kinds of activities in a typical week during the 1998 fall term. The activities include all paid and unpaid activities inside and outside their institutions, such as teaching, clinical service, research, service, administration, consulting, and professional services.

Compensation (*Q76*): was computed by adding all sources of income (both monetary and non-monetary) of a faculty member from his/her institution. It includes three major parts:

a. Basic salary for a calendar year
b. Other income from this institution (e.g., for summer session, overload courses, administration, research, and coaching sports), and
c. Non-monetary compensation, such as food, housing, and car provided by this institution.

Faculty's compensations from other sources or from another academic institution, such as consulting fees, speaking fees, income from freelance work or self-owned business, etc., were not included.

Scholarly Work (*Q29*): the total number of presentations and publications during the past two years including both sole responsibility and joint responsibility. This variable was created by summing up the z-scores of five kinds of scholarly work:

a. Articles published in refereed professional or trade journals; creative works published in juried media;
b. Articles published in non-refereed professional or trade journals: creative works published in non-juried media or in-house newsletters;
c. Published reviews of books, articles, or creative works; chapters in edited volumes
d. Textbook, other books; monographs; research or technical reports disseminated internally or to clients; and
e. Presentations at conferences, workshops, etc.; exhibitions or performances in the fine or applied arts.

Funded Research *(Q58 & Q59)*: a 2-item scale measuring a person's involvement in funded research activities:

a. Total number of grants or contracts from all sources (i.e., institution, foundation, non- or for-profit organization, industry, state or local government, federal government, etc.) in the 1998 fall term
b. Total funds received from all sources in the 1998-99 year

Teaching Productivity *(Q33, Q34, & Q41)*: a five-item scale measuring a faculty member's teaching productivity. The average z-scores of the following items were calculated:

a. Total number of courses taught
b. Total number of classes/sections taught
c. Total hours per week teaching classes
d. Total student enrollment, and
e. Total student credit hours

Committee Service *(Q62)*: the total number of administrative committees a faculty member served on during the fall of 1998, including curriculum committees, personnel committees, and governance committees at department, college and institution levels.

Job Satisfaction Variables

Job satisfaction is a multidimensional construct. Exploratory and confirmatory factor analyses identified seven dimensions of job satisfaction: satisfaction with workload, satisfaction with job security, satisfaction with autonomy, satisfaction with

salary and benefits, satisfaction with resources, perceived gender/racial climate, and perceived institutional decline.

Satisfaction with Workload *(Q65d, Q65e, Q66a, Q66d & Q93b)*: is a five-item scale:

a. Satisfaction with time available for class preparation;

b. Satisfaction with time available to advise students;

c. Satisfaction with workload;

d. Satisfaction with time to keep current in field; and

e. Opinion on the workload increase of full-time faculty.

Satisfaction with Job Security *(Q66b & Q66c)*: is a two-item scale measuring one's job satisfaction with job security and advancement opportunities.

Satisfaction with Job Autonomy *(Q65a, Q65b & Q65c)*: is a three-item scale:

a. Satisfaction with authority to decide course taught;

b. Satisfaction with authority to decide course content; and

c. Satisfaction with authority to make other job decisions.

Satisfaction with Resources *(Q60)*: measures one's satisfaction with fourteen kinds of resources on campus including basic teaching and research facilities, equipment and instruments, laboratory and library, availability of teaching and research assistants, computer and internet facilities, audio-visual equipment, classroom and office spaces, studio/performance space, and secretarial support. The faculty were asked to rate the kinds of resources that are applicable to them. A faculty member's responses were summed up and then divided by the number of items he/she has rated.

Satisfaction with Compensation *(Q66g & Q66h)*: a two-item scale, self-reported satisfaction with one's compensation and benefits.

Perceived Campus Climate *(Q92f & Q92g)*: this is a two-item scale measuring the gender and racial climate on campus. Faculty were asked to rate whether the female and minority faculty were treated fairly in their institutions.

Perceived Institutional Decline (Q93c, Q93d, Q93e & Q93f): a four-item scale:

a. Perceived declining atmosphere for expression of ideas;
b. Perceived declining quality of research at this institution;
c. Perceived declining undergraduate education; and
d. Full-time faculty being replaced by part-time faculty at this institution

External Variables

Outside one's current institution, five variables were hypothesized to influence one's intention to leave. One of the variables, external job market, was obtained directly from the Survey, and the remaining four variables were obtained from a confirmatory factor analysis.

In NSOPF: 99, Question 69 and 70 directly address external pull factors. These questions asked faculty what factors were important to them when they sought a position elsewhere, either inside or outside of academia. An ordinal variable ranging from (1 to 3) was created for each item:

1 = not important

2 = somewhat important

3 = very important

A factor analysis generated four factors:

1. Extrinsic rewards from work
2. Research opportunities
3. Teaching opportunities
4. Family considerations

The factor loadings of each factor are shown in Table 3-3. Then, four scales were built using the average scores of a faculty member's responses to the items in each of the four factors.

Table 3-3: Factor Loadings for External Factors

Items	Factors			
	Extrinsic Rewards	Research Opportunities	Teaching Opportunities	Family Conditions
Job security	.749			
Salary level	.713			
Benefits	.632			
Tenure-track/tenured position	.624			
Opportunities for advancement	.441			
Greater opportunities to do research		.772		
Good research facilities & equipment		.754		
No pressure to publish		-.554	.504	
Greater opportunities to teach			.808	
Good instructional facilities & equipment			.666	
Good geographic location				.707
Good job or job opportunities for spouse or partner				.659
Good environment/schools for children				.586

External Extrinsic Rewards *(Q69a, Q69b, Q69c, Q69d & Q69e)*: how important the following five items are in their decision to take another position: job security, salary level, benefits, tenure-track or tenured position, and opportunities for advancement.

Research Opportunities *(Q69g & Q69m)*: how important greater opportunities to do research and good research facilities and equipment are in their decision to take another position.

Teaching Opportunities *(Q69f, Q69h & Q69l)*: whether greater opportunities to teach, good instructional facilities and equipment, and no pressure to publish are important in their decision to take another position.

Family Considerations *(Q69i, Q69j & Q69k)*: this scale has three items: good geographic location, good job or job opportunities for spouse or partner, and good environment/schools for kids.

External Job Market *(Q14 & Q15)*: the influence from external job market is hard to measure directly. The variable, academic discipline, was used as the proxy for it because faculty are highly and narrowly trained specialists whose mobility is confined by their discipline (McPherson & Winston, 1988). Academic disciplines segregate the academic labor market into different sub-markets. Faculty who have similar work experiences and even work for one institution face different employment opportunities. In late 1990s, faculty in growing fields such as computer science had plenty job opportunities both inside and outside of academia. Faculty in shrieking fields such as humanities were struggling and were willing to teach for food (Nelson, 1997). For this analysis, all academic disciplines were divided into ten categories: agriculture and home

economics, business, education, engineering, fine arts, health sciences, humanities, natural sciences, social sciences, and all other vocational programs.

Analytical Methods

This study includes a large number of variables in analyses. Some variables may have significant direct influences on intent to leave, some others may have significant indirect effects through their influence on job satisfaction, and the rest may not have significant effect at all. To build the structural equation model (SEM), the researcher first conducted two types of ordinary least squares (OLS) regression analysis to identify the significant predictors: one using each of the job satisfaction variables as dependent, and the other using the computed intention to leave variable as dependent. Appendix A (at the end of the dissertation) shows the correlation coefficients of all the variables. To avoid multi-colinearity, no correlation coefficient is above .50.

In the first OLS regression series, each of the job satisfaction measures was treated as dependent variables using personal characteristics, institutional characteristics and work experience variables as predictors. The researcher built seven regression models and examined the standardized beta weights that are significant at .05 level or lower. The results of this exercise identified a large number of measures that did and did not exert a significant influence on each job satisfaction measure. In the second regression series, and to further trim the model, the researcher conducted another OLS regression on intention to leave, using all personal characteristics, institutional characteristics, work experience, and all job satisfaction variables as predictors.

Variables that failed to appear in either OLS regression series at the .05 level were "trimmed" from the SEM model.

These regression tests set a baseline for structural equation modeling. In the third step the researcher tested the theoretical model using SEM and examined the magnitude of the direct and indirect effects of the independent variables on departure intentions.

Table 3-1: List of Variables

Variables	Description	Items/Values	Factor Loading
Personal Characteristics			
Female	Q81 (as in faculty survey), dichotomous variable	0 = male, 1 = female	
Minority	Q84, dichotomous variable	0 = nonminority, 1 = minority	
Doctoral Degree	Q91, dichotomous variables	0 = master's degree or equivalent 1 = doctoral/professional degree	
Family /Marital Status	Q80 & Q87, 4-point scale	1 = single without dependents 2 = single with dependents 3 = married without dependents 4 = married with dependents	
Family SES	Q79 & Q78, average household income per household member		
Institutional Characteristics			
Private Institution*	From IPEDS, dichotomous variable	0 = public, 1 = private	
Size*	From IPEDS, total student enrollment		
Wealth*	From IPEDS, total educational & general expenditure per student		
Institutional Diversity*	From IPEDS, percentage of minority enrollment		
Unionization	Q15**, percent of unionized faculty		
Instructional Consolidation *Alpha = .794*	Q3A**, 4-item scale, institutional policies/practices to consolidate instructional duties and to decrease the size of FT faculty	Increased class size	.862
		Increasing faculty course load	.823
		Replacing FT faculty with PT	.773
		Reduced course/program offerings	.700
Employee Benefits	Q8** & Q9**, benefits options and degree of subsidization		
Work Experiences			
Workload	Q30, average hours working per week		
Compensation	Q76, all sources of income (monetary & non-monetary) from the institution		
Scholarly Work *Alpha = .704*	Q29, 5-item scale, total # of presentations & publications during past 2 years, including both sole and joint responsibility	Presentations, exhibitions, and performances	.729
		Articles published in refereed journals	.705

		Articles published in non-refereed journals	.690
		Published reviews and chapters	.661
		Books, monographs, and reports	.595
Funded Research *Alpha = .772*	Q58 & Q59, 2-item scale, total # of research grants and total funds	Total # of grants/contracts	.903
		Total funds received from all sources	.903
Teaching Productivity *Alpha = .774*	Q33, Q34 & Q41, 5-item scale measuring one's teaching workload and teaching productivity	Total courses taught	.764
		Total hours per week teaching classes	.753
		Total student enrollment	.735
		Total classes /sections taught	.724
		Total student credit hours	.649
Committee Service	Q62, # of administrative committees served on at this institution		
Seniority	A 6-item factor reflecting one's career stage	Length of service at this institution	.907
		Career age	.897
		Age	.847
		Time in rank	.801
		Academic rank	.746
		Tenure status	.744
Job Satisfaction and Perceptions on Working Environment			
Satisfaction w/ Workload *Alpha = .774*	Q65D, Q65E, Q66A Q66D & Q93B, a 5-item scale measuring one's satisfaction with workload	Satisfaction with time available for class preparation	.808
		Satisfaction with time available to advise students	.780
		Satisfaction with workload	.767
		Satisfaction with time to keep current in field	.753
		Opinions on the workload increase	.490
Satisfaction w/ Job Security *Alpha = .736*	Q66B & Q66C, 2-item scale measuring one's satisfaction with job security	Satisfaction with job security	.890
		Satisfaction with advancement opportunities	.890
Satisfaction w/ Compensation *Alpha = .723*	Q66G & Q66H, 2-item scale measuring one's satisfaction with salary and benefits	Satisfaction with salary	.888
		Satisfaction with benefits	.888
Satisfaction w/ Job Autonomy *Alpha = .705*	Q65A, Q65B & Q65C, 3-item scale measuring one's satisfaction with job autonomy	Satisfaction with authority to decide courses taught	.844
		Satisfaction with authority to decide course content	.786
		Satisfaction with authority to make other job decisions	.769
Satisfaction w/ Resources	Q60, 14-item scale reflecting one's satisfaction instructional, research, and other resources available		

Perceived Campus Climate *Alpha = .812*	Q92F & Q92G, 2-item scale reflecting one's perception of gender and racial climate on campus	Favorable treatment of female faculty at this institution	.917
		Favorable treatment of minority faculty at this institution	.917
Perceived Institutional Decline *Alpha = .624*	Q93C-F, reflecting one's opinion on the institution, including undergraduate education, faculty, quality of research, and atmosphere	Declining atmosphere for expression of ideas	.740
		Declining quality of research at this institution	.740
		Declining undergraduate education	.728
		FT faculty being replaced by PT faculty at this institution	.542
External Variables			
Academic Discipline	Q14 & 15 combined, 10 dummy variables indicating the primary research or teaching field of a faculty member	Agriculture & home economics Business Education Engineering Fine arts Health sciences Humanities Natural sciences Social sciences All other programs (vocational)	
Extrinsic Rewards	A 5-item factor reflecting the various job rewards items a faculty seeks in another position	Job security	.749
		Salary level	.713
		Benefits	.632
		Tenure-track/tenured position	.624
		Opportunities for advancement	.441
Research Opportunities	A 2-item factor reflecting the "pull" factor – research opportunities	Greater opportunities to do research	.772
		Good research facilities & equipment	.754
Teaching Opportunities	A 3-item factor reflecting the "pull" factor – teaching opportunities	No pressure to publish	.504
		Greater opportunities to teach	.808
		Good instructional facilities & equipment	.666
Family Considerations	A 3-item factor reflecting the non-job related "pull" factor – family issues	Good geographic location	.707
		Good job or job opportunities for spouse or partner	.659
		Good environment/schools for kids	.586
Dependent Variable			
Intention to Leave	Q67, a single item reflecting how likely the faculty would accept a FT/PT positions in or out of academe in the next three years	0 = not at all likely 1 = almost unlikely 2 = somewhat likely 3 = very likely 4 = definitely likely	

Table 3-2: Descriptive Statistics of Variables Included in the Study

Variables	N	Min.	Max.	Mean	% Cell	Standard Deviation
Institution Control	172,839	0	1	0.23		.42
Public	132,755				76.8%	
Private	40,085				23.2%	
Institution Size	172,839	1,319	48,906	23,645		11,360
Institution Wealth	170,034	5,898	204,058	23,138		20,160
Institution Diversity	171,609	3	93	19.99		12.83
% of Unionization	172,839	0	100	18.68		36.50
Instructional Consolidation	172,839	0	4	.58		1.10
Employee Benefits	172,839	0	26	16.05		4.76
Gender	172,839	0	1	.29		.46
Male	121,866				70.5%	
Female	50,973				29.5%	
Ethnicity	172,839	0	1	.17		.38
Non-Minority	142,981				82.7%	
Minority	29,858				17.3%	
Doctoral Degree	172,839	0	1	.86		.35
Yes	148,101				85.7%	
No	24,738				14.3%	
Age	172,839	23	80	47.45		9.40
Under 45	68,195				39.5%	
45-54	61,440				35.5%	
55-64	36,929				21.4%	
65 or more	6,275				3.6%	
Career Age	172,650	1	47	16.40		10.17
Family Status	172,839	1	4	2.52		.83
Single no dependents	29,618				17.1%	
Single with dependents	8,897				5.1%	
Married no dependents	33,368				19.3%	
Married with dependents	100,956				58.4%	
Family SES	172,747	1,400	750,000	72,990		105,245
Workload	172,839	1	85	54.84		13.11
Compensation	172,839	1,250	300,000	67,529		33,543
1-40,000	30,145				17.4%	
40,001-50,000	30,528				17.7%	
50,001-60,000	28,552				16.5%	
60,001-70,000	20,594				11.9%	
70,001-80,000	19,486				11.3%	
80,001-100,000	20,827				12.0%	
Above 100,000	22,708				13.1%	
Tenure Status	172,893					
Tenured	96,602				55.9%	

Untenured, on tenure track	37,422				21.7%	
Nontenured, not on track	36,560				21.2%	
Nontenured, no tenure system	2,255				1.3%	
Academic Rank	172,552	1	4	2.84		1.01
Instructor/Lecturer	18,996				11.0%	
Assistant Professor	46,321				26.8%	
Associate Professor	50,023				29.0%	
Full Professor	57,212				33.2%	
Time in Rank	172,552	1	39	7.16		6.83
Length of Service	172,839	1	40	11.60		9.45
Seniority	172,363	-1.83	3.09	0		1.00
Teaching Productivity	172,839	-1.16	8.79	0		.73
Scholarly Work	172,839	-.49	5.93	0		.68
Funded Research	164,270	-.55	6.14	0		.96
Committee Service	172,839	0	22	3.98		3.24
Job Satisfaction						
Satisfaction w/ Workload	168090	1	4	2.70		.62
Satisfaction w/ Job Security	172,839	1	4	3.09		.87
Satisfaction w/ Compensation	172,839	1	4	2.81		.80
Satisfaction w/ Job Autonomy	168,090	1	4	3.38		.61
Satisfaction w/ Resources	172,405	1	4	2.74		.56
Perceived Campus Climate	172,839	1	4	2.98		.68
Perceived Institutional Decline	172,839	1	4	2.41		.55
External Job Market	172,839					
Agriculture & Home economics	6,247				3.6%	
Business	9,745				5.6%	
Education	9,890				5.7%	
Engineering	13,151				7.6%	
Fine Arts	8,782				5.1%	
Health Sciences	20,613				11.9%	
Humanities	20,956				12.1%	
Natural Sciences	44,186				25.6%	
Social Sciences	20,108				11.6%	
Other Vocational Programs	19,111				11.1%	
External Extrinsic Rewards	172,839	1	3	2.54		.43
Research Opportunities	172,839	1	3	2.42		.62
Teaching Opportunities	172,839	1	3	1.97		.51
Family Considerations	172,839	1	3	2.50		.51
Intention to Leave	172,839	0	4	1.06		1.23
0	77,749				45.0%	
1	41,721				24.1%	
2	30,662				17.7%	
3	10,092				5.8%	
4	12,616				7.3%	

Chapter 4

Results – For All Faculty

This section summarizes the results obtained from the descriptive statistics, t-test, ANOVA, OLS regression, and structural equation modeling (SEM) for all faculty.

Results from Descriptive Statistics

Using descriptive statistic methods, the study attempts to answer the following research questions: *Who are today's faculty in research and doctoral institutions? What characteristics do they have? What is the general level of departure intentions among them? Do the intention levels vary by personal characteristics, by institutional characteristics, by workload, performance and compensation?*

Faculty Characteristics

The weighted data show that there were about 173,000 full-time faculty who had faculty status and who did not plan to retire in the next three years, working in research and doctoral institutions in the fall of 1998[6]. 70.5% of them were male and 29.5% were female. 82.7% of them were White and 85.7% of them had a doctoral or first

[6] Table 3-2, Descriptive Statistics of the Variables, presents more detailed information.

professional degree. Their average age was 47.5 years old and their average career age was 16.4 years in the year 1999. More than half of these faculty (58.4%) were married with dependents. On average, their institutions paid them $65,500 a year. Their average household income per household member was $72,990.

About 76.8% of these faculty worked in public institutions. A typical faculty member worked, on average, 54.8 hours per week. 55.9% of them were tenured, 21.7% were untenured but on tenure track, and the rest were not on tenure track at all. 33.2% of the faculty were full professors, 29% were associate professors, 26.8% were assistant professors, and the remaining 11% were instructors or lecturers. However, not all full professors had tenure status. Table **4-1** shows the distribution of the faculty by academic rank and tenure status. About 6% of full professors and 8.6% of associate professors were not even on tenure track although their institutions have a tenure system. The average time in rank was 7.2 years, and on average, the faculty had been serving 11.6 years in the current institutions by 1999. There was a very wide range of total income the faculty received from their institutions, from $1,250 to $300,000 annually. The mean salary was $67,529. 17.4% of the faculty were paid less than $40,000 a year, compared with another 13% who earned above $100,000 a year.

Table 4-1: Percentage Distribution of the Faculty by Academic Rank and Tenure Status

Academic Rank	Tenured	Non-tenured		
		On tenure track, but not tenured	Not on tenure track although institution has a tenure system	No tenure system at this institution
Professor	92.7%	.6%	6.0%	.7%
Associate Professor	81.2%	8.5%	8.6%	1.7%
Assistant Professor	5.5%	69.1%	24.7%	.7%
Instructor/Lecturer	3.1%	3.8%	90.7%	2.5%
Total	56.5%	21.9%	20.4%	1.2%

Faculty Attitudes

Of the seven dimensions of job satisfaction identified earlier, the faculty were most satisfied with job autonomy (with a mean value of 3.38 on a 1 to 4 scale), followed by job security (mean = 3.09). The faculty were least satisfied with workload (mean = 2.70) and resources (mean = 2.74).

In NSOPF-99 Faculty Survey, Question 69 lists 13 items and asks faculty to rate how important each item is when they seek a position elsewhere, either inside or outside of academia. Question 70 goes on to ask faculty to select the most important item listed in Question 69. A simple frequency test revealed that the top three most important items were salary level, opportunities to do research and geographic location. Especially salary – one out of four faculty regarded it as the most important factor in their decision! Among the least important items were benefits, no pressure to publish and good instructional facilities and equipment. Only 1.5% of faculty regarded “benefits” as the

most important item. Table 4-2 summarizes the percentage distribution of the responses. Accumulatively, extrinsic rewards (with an accumulative percentage of 50.2%) was rated as the most important external factor.

Table 4-2: Faculty Ratings of the Most Important External Factor

Factors	Items	Percentage
Extrinsic Rewards	Salary level	27.6%
	Opportunities for advancement	8.2%
	Job security	6.9%
	Tenure-track or tenured position	6.0%
	Benefits	1.5%
	Sub-total	**50.2%**
Research Opportunities	Greater opportunity to do research	15.6%
	Good research facilities & equipment	7.0%
	Sub-total	**22.6%**
Family Considerations	Good geographic location	10.9%
	Good job or job opportunities for spouse or partner	5.7%
	Good environment or schools for children	2.4%
	Subtotal	**19%**
Teaching Opportunities	Greater opportunity to teach	3.0%
	Good instructional facilities and equipment	1.9%
	No pressure to publish	1.9%
	Subtotal	**6.8%**

Intention to Leave – Differences by Group

Generally, the faculty expressed a very low level of departure intention. On a zero to four scale, the mean value of intention to leave was only 1.06. About 45% of faculty did not plan to leave their current position at all, compared with 7.3% who were very likely to take another position in the next three years. In the following analyses, independent sample t-test and ANOVA were used to examine whether the mean values of intention to leave differ by groups of faculty. The purpose of these tests was to create a

baseline for regression analyses. The variables tested included gender, ethnicity, age, marital status, educational attainment, career age, tenure status, academic rank, academic discipline, institutional control and unionization. Table **4-3** shows the mean intention to leave by groups of faculty.

Individual Characteristics and Intention to Leave

Female faculty are more likely to leave than their male colleagues, and the difference is significant. White faculty are more likely to stay than the minority faculty. Single faculty are more likely to leave than the married faculty. Faculty who hold a master's degree or lower are more likely to leave than those who have a doctoral or first-professional degree. Faculty in different age groups show different level of departure intentions as well (see Figure **4-1**). The faculty were categorized into six age groups, and the mean values of the groups were compared. ANOVA yields three homogeneous age groups. Younger faculty who are under 45 are most likely to leave; middle-aged faculty (from 45-54) are more stable; senior faculty, who are above 55, are most unlikely to leave their current positions. Then, the faculty were re-categorized into eight career age groups. Faculty at different career stages also show different levels of departure intentions (see Figure **4-2**). The longer the career age, the less likely a faculty member would leave. Faculty who have just started their career (with a career age lower than three years) are most likely to leave.

Table 4-3: Mean Intention to Leave by Groups of Faculty

Variable		N	Mean*	Std. Deviation	Std. Error	t-test for Equity of Means		ANOVA	
						t-value	Sig.	F-value	Sig.
Total		**3530**	**1.06**	**1.23**	**.032**				
Gender	Male	2489	.97	1.16	.037				
	Female	1041	1.29	1.35	.066	-4.332	.000		
Race	White	2920	1.00	1.20	.035				
	Minority	610	1.37	1.34	.085	-4.004	.000		
Age	Under 44	1393	1.48	1.29	.054				
	45-54	1255	.97	1.17	.052				
	55-64	754	.54	.96	.055			50.294	.000
	Above 65	128	.46	.95	.131				
Educational Attainment	Doctoral Degree	3025	1.01	1.18	.022				
	No Doctoral Degree	505	1.38	1.44	.064	5.387	.000		
Career Age	Under 5	467	1.67	1.31	.095				
	5-9	607	1.52	1.31	.083				
	10-14	618	1.13	1.72	.074				
	15-19	518	.98	1.13	.078				
	20-24	462	.98	1.60	.084				
	25-29	450	.62	1.04	.077			28.857	.000
	30 or more	404	.44	.878	.068				
Family/ Marital Status	Single with dependents	182	1.37	1.33	.154				
	Single without dependents	605	1.23	1.26	.080				
	Married with dependents	2062	1.02	1.22	.042			3.942	.008
	Married without dependents	681	.96	1.20	.072				

Tenure	Not tenured	1557	1.48	1.38	.055				
	Tenured	1973	.73	.98	.035	11.523	.000		
Academic Rank	Instructor/Lecturer	388	1.56	1.42	.113				
	Assistant Professor	946	1.44	1.31	.066				
	Associate Professor	1022	1.00	1.58	.057			42.61	.000
	Professor	1168	.65	.99	.045				
Academic Disciplines	Agriculture & Home Economics	128	.76	1.12	.155				
	Business	199	1.15	1.21	.134				
	Education	202	1.08	1.30	.143				
	Engineering	269	1.08	1.21	.115				
	Fine Arts	179	1.14	1.32	.154				
	Health Sciences	421	1.07	1.22	.093				
	Humanities	428	.97	1.17	.089				
	Natural Sciences	902	1.11	1.27	.066				
	Social Sciences	411	1.07	1.20	.093			.585	.811
	All Other Vocational Programs	390	1.05	1.24	.099				
Total Income from Institution	$1-$40,000	616	1.59	1.47	.093				
	$40,001-$50,000	623	1.28	1.28	.080				
	$50,001-$60,000	583	.96	1.11	.072				
	$60,001-$70,000	421	.88	1.14	.087				
	$70,001-$80,000	398	1.00	1.10	.86				
	$80,001-$100,000	425	.70	1.01	.077			15.695	.000
	Above $100,000	464	.75	1.04	.076				
Institutional Control	Public	2711	1.07	1.24	.037				
	Private	819	1.03	1.21	.066	.557	.578		
Unionization	Unionized	907	.94	1.21	.063				
	Not Unionized	2623	1.11	1.24	.038	-2.194	.028		

*Intention to leave: 5-point scale, ranging from 0-4.

Figure 4-1: Mean Intention to Leave by Age Group

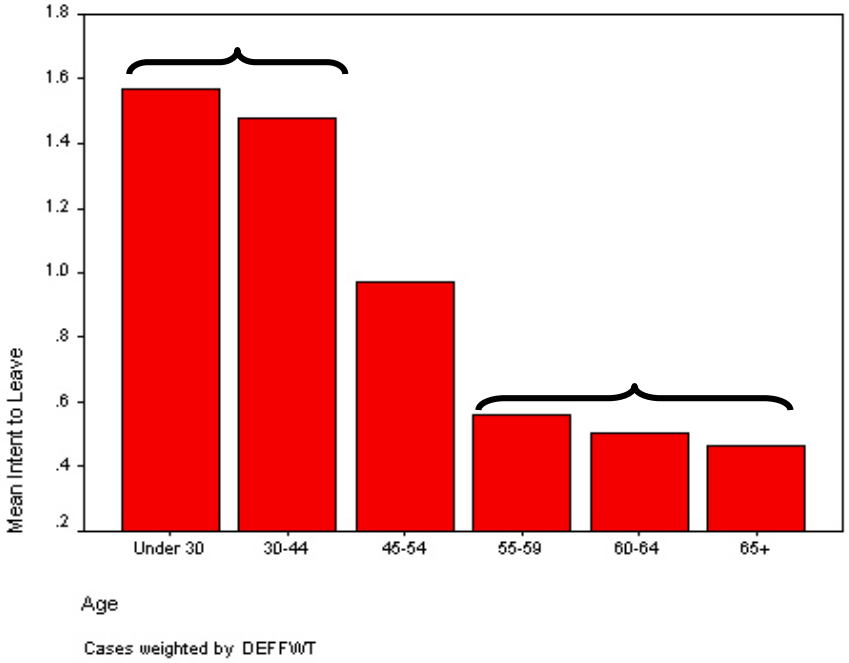
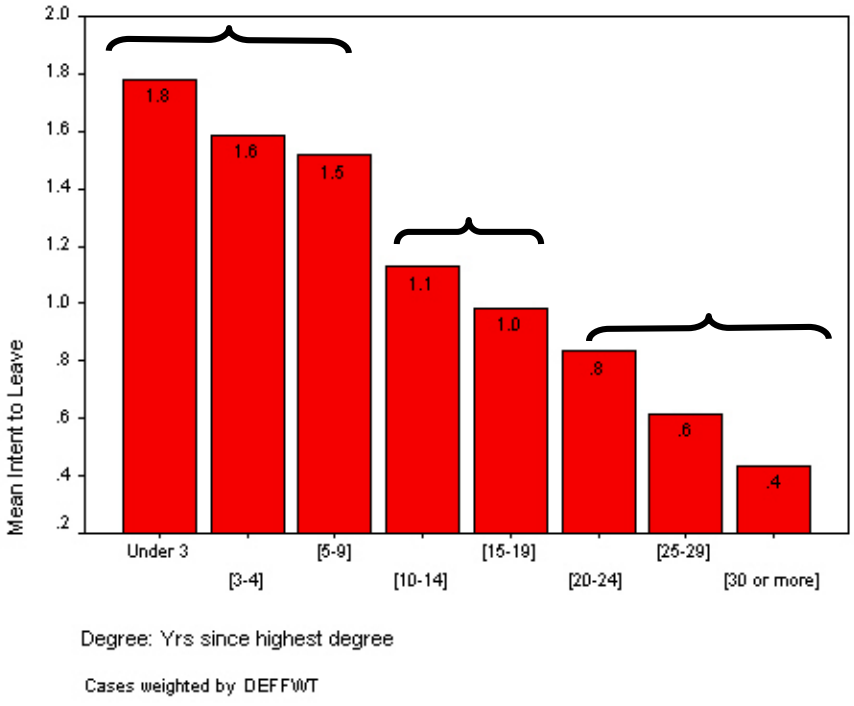


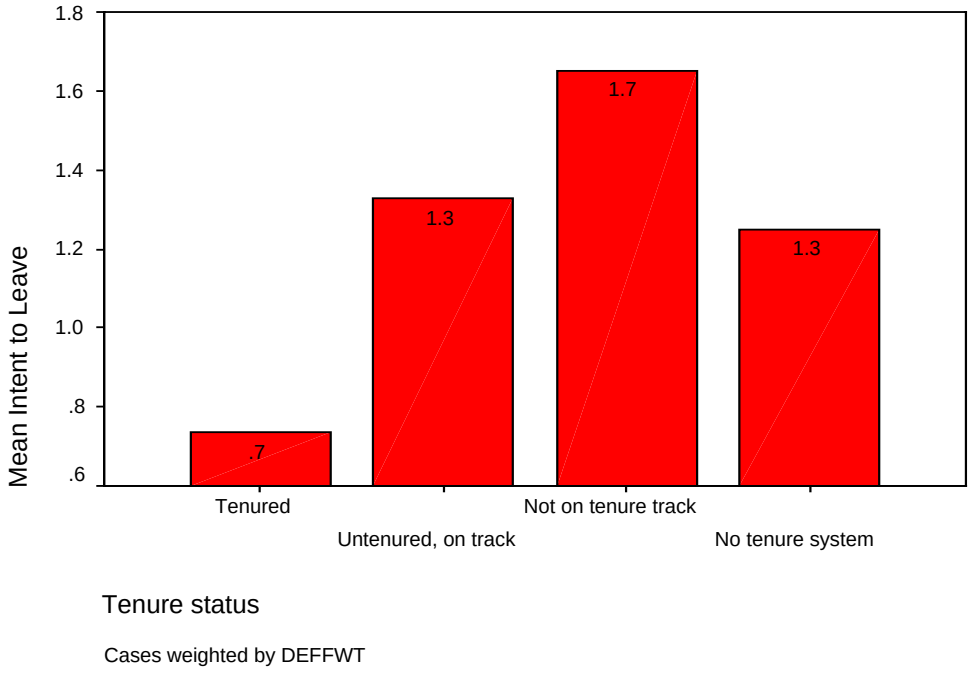
Figure 4-2: Intention to Leave by Career Age



Job Rewards and Intention to Leave

Tenured faculty are less likely to leave than non-tenured faculty. Figure **4-3** shows the differences in mean values by tenure status. Among the non-tenured faculty, the faculty who work for an institution with a tenure system but who are not on tenure track have the strongest intention to leave than those faculty who have a tenure-track position or whose institution does not have a tenure system at all.

Figure **4-3**: Intent to Leave by Tenure Status



When testing the differences by academic rank, ANOVA generated three homogenous groups (see Figure **4-4**): full professors are most unlikely to leave (mean equals to .65); associate professors have a mean of 1.00; the assistant professors and instructors/lecturers constitute one group. They are most likely to leave, with a mean of

1.44 and 1.56 respectively. Therefore, the higher the academic rank, the less likely a faculty member intends to leave his/her current position.

The higher the compensation a faculty member receives from the institution, the less likely he/she intends to leave (Figure 4-5). Faculty whose annual income from the institution is less than $50,000 are twice as likely to look for another position as faculty who make more than $80,000 a year. The difference in salary may reflect difference in academic rank and tenure status. Non-tenured instructors, lecturers, and assistant professors tend to have lower salaries. Tenured professors tend to have higher salaries. In summary, the differences in mean levels of departure intentions by age, career age, tenure status, academic rank, and compensation tend convey one message: the faculty who are more senior are more likely to stay; the faculty who have just started their careers are more likely to look for opportunities elsewhere.

Figure 4-4: Intention to Leave by Academic Rank

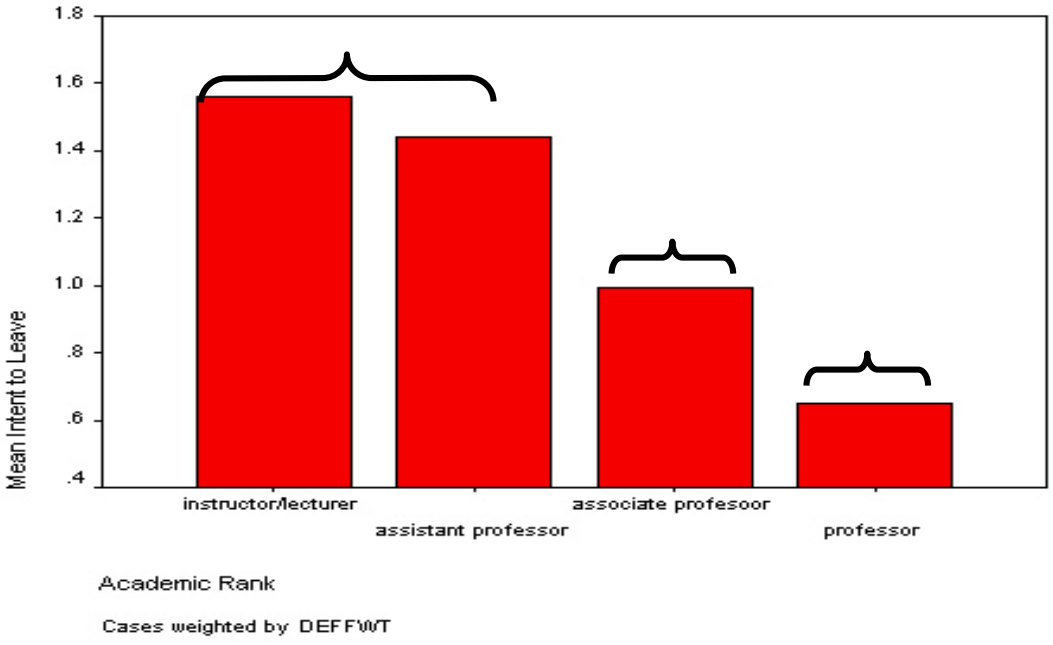
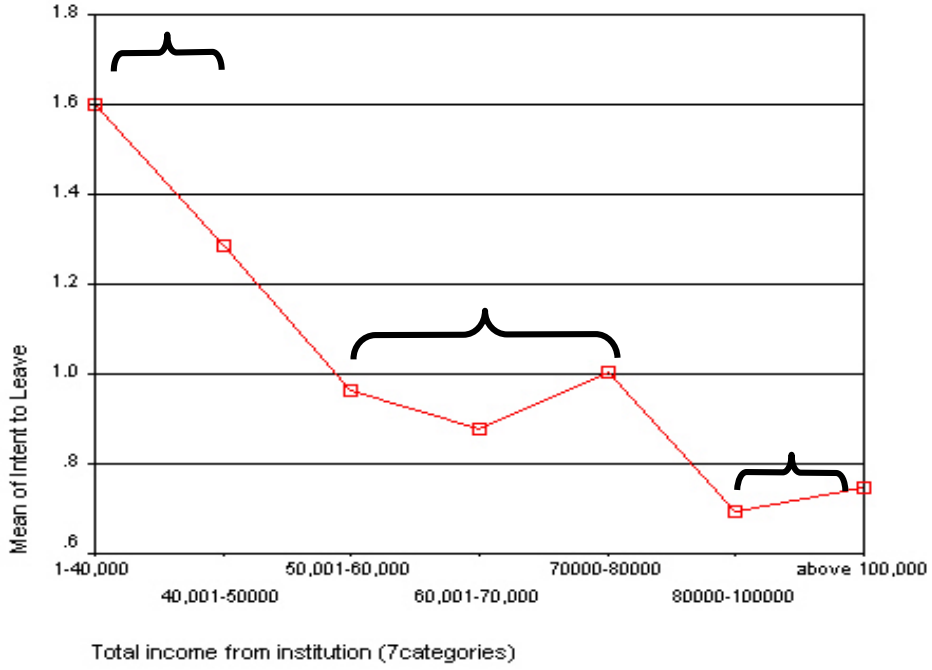


Figure 4-5: Intention to Leave by Income Categories



Institutional Factors, External Forces and Intention to Leave

The mean value of intention to leave for faculty in public institutions is 1.24, and the mean value for faculty in private institutions is 1.21. An independent sample t-test did not find any significant difference between the two groups. However, faculty working in unionized institutions are more likely to stay than those in un-unionized institutions.

All the academic disciplines were grouped into 26 categories. And later, these 26 categories were further collapsed into 10 categories. In ANOVA test, no matter which grouping factor was used, the differences between groups were not statistically significant. Faculty in agriculture, home-economics, and law have the lowest mean

score, which is lower than .80. They are the least likely to leave. Faculty in political science, economics, and computer sciences are most likely to leave, with a mean score above 1.25. However, the ANOVA test concluded that faculty's intention to leave does not vary significantly across academic disciplines.

Regression Analyses for All Faculty

Regression analyses were used to test ***direct*** effect of exogenous variables on endogenous variables such as job satisfaction and intention to leave. They attempted to answer the following research questions: *after controlling for the effects of other variables in the model, what personal characteristics, institutional characteristics, and work experience factors directly influence different dimensions of faculty job satisfaction? What factors within the employing institutions have significant direct impact on faculty departure intentions? What external factors have significant direct impact?*

The regression analyses were conducted in two major phases. In the first phase, five job satisfaction and two institutional perception variables were treated as dependent variables using personal characteristics, institutional characteristics and work experience variables as predictors. In the second phase, intention to leave was used as the dependent variable, with blocks of variables, personal characteristics, institutional characteristics, work experiences, and satisfaction variables, entered into the model step by step. These analyses laid a foundation for structural equation modeling. Table **4-4** summarizes the results of the regression analyses on seven measures of satisfaction and perception. Table

4-5 summarizes the multivariate regression results on intention to leave. Only the standardized beta weights which are significant at .05 level or lower are reported.

Job Satisfaction and Perceptions

Seniority, followed by compensation and committee service, has the strongest impact on satisfaction with job security. Apparently, the faculty who have tenure and higher academic rank feel greater job security. The faculty who receive higher compensation and who are involved more in the university governance are also more satisfied with their job security. Female faculty are less satisfied with their job security than their male colleagues.

Only two personal characteristics variables have significant impacts on one's perceptions of gender/racial climate on campus. Gender has the strongest negative influence. Fewer female faculty think they have received fair treatment than their male counterparts. Minority faculty have lower satisfaction than non-minorities, too.

Satisfaction with workload is influenced by personal characteristics, but even more strongly, by one's work experience. The faculty who spend more time on administrative committee services tend to be less satisfied with their workload, along with the faculty who work longer hours each week and those who spend more time teaching. Female faculty and faculty with doctoral degrees are less satisfied with their workload. Seniority and compensation exert positive influences on faculty satisfaction with workload. Faculty members' satisfaction with workload does not vary by institutional characteristics.

Table 4-4: OLS Regression Analysis Results on Job Satisfaction for All Faculty

Variables	Standardized Beta Weights						
	Satisfaction w Job Security	**Perceived Campus Climate**	**Satisfaction w Workload**	**Satisfaction w Compensation**	**Satisfaction w Autonomy**	**Satisfaction w Resources**	**Perceived Institutional Decline**
Personal Characteristics							
Female	-.077**	-.311**	-.094**				
Minority		-.077**		-.134**			
Doctoral Degree			-.078**	-.074**		-.070*	
Family/Marital Status					-.096**		
Family SES							
Institutional Characteristics							
Private Institution				.071*			
Size				.088**			
Wealth						.090**	-.073*
Diversity						-.066*	
Instructional Consolidation							
Unionization							
Benefits							
Work Experience							
Seniority	.228**		.133**		.077*		
Workload			-.161**	-.087**	-.068*	-.082**	
Creative Work							
Funded Research							
Teaching Productivity			-.066*		-.090**		
Committee Service	.103**		-.182**				.056*
Compensation	.128**		.079*	.221**	.094**	.090*	-.072*
R^2	.154	.126	.120	.094	.053	.052	.039
Adj. R^2	.142	.113	.107	.081	.040	.039	.026

** Significant at .01 level. * Significant at .05 level.

Table 4-5: **Stepwise Regression Results on Intention to Leave**

Variables	Standardized Beta Weights				
	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**
Personal Characteristics (Model 1-5)					
Female	.107**	.108**			
Minority	.109**	.116**	.066*		.053*
Doctoral Degree	-.087**	-.080**	-.055*	-.067**	-.061*
Family/Marital Status					
Family SES	-.065*	-.063*			
Institutional Characteristics (Model 2-5)					
Private Institution					
Size					
Wealth					
Diversity					
Instructional Consolidation					
Unionization					
Employee Benefits					
Work Experience (Model 3-5)					
Seniority			-.317**	-.264**	-.277**
Workload			.065*		
Creative Work					
Funded Research					
Teaching Productivity			-.061*	-.080**	-.077**
Committee Service			-.058*		
Compensation					
Job Satisfaction (Model 4-5)					
Satisfaction w workload					
Satisfaction w job security				-.216**	-.214**
Satisfaction w compensation				-.086**	-.092**
Satisfaction w autonomy				-.057*	-.058*
Satisfaction w resources				-.060*	-.055*
Perceived campus climate					
Perceived institutional decline				.073**	.071**
External Variables (Model 5)					
Business					
Education					
Engineering					
Fine Arts					
Health Sciences					
Humanity					
Natural Sciences					
Social Science					
Other Programs					
Pull – Extrinsic Rewards					-.089**

Pull – Research Opportunities					
Pull – Teaching Opportunities					
Pull – Family Considerations					
R^2	**.039**	**.043**	**.157**	**.263**	**.274**
Adj. R^2	**.035**	**.035**	**.145**	**.249**	**.252**
R^2 **Change**	**.039**	**.004**	**.113**	**.106**	**.011**
Sig. of R^2 **Change**	**.000***	**.530**	**.000***	**.000****	**.107**

* Significant at .05 level.
** Significant at .01 level.

One's total income from his/her institution is the strongest predictor of one's satisfaction with compensation. The faculty working in private and bigger universities tend to be more satisfied with their salary and benefits than those working in public and smaller universities. Minority faculty, as well as the faculty who have a doctoral degree and who work longer hours each week, are less satisfied with their compensation. Another interesting finding is the lack of association between seniority, productivity, and satisfaction with salary. Junior faculty tend to have lower salary but that does not influence their satisfaction with salary. Faculty tend to have different levels of teaching, research and service productivity, but the type of work has little impact on faculty satisfaction with compensation. Even though faculty working in fields such as business and engineering have higher average salary levels than those in programs such as education and humanities, the salary differences across disciplines have no significant impact on one's satisfaction with his/her compensation.

The model is very weak in predicting one's satisfaction with autonomy. Teaching productivity and workload have negative impacts while seniority and compensation have positive impacts on satisfaction with autonomy. Married faculty are less satisfied with job autonomy than single faculty.

Institutional characteristics influence one's satisfaction with resources. Faculty in wealthier institutions are more satisfied with resources while faculty in the institutions with higher minority student enrollment are less satisfied. Satisfaction with resources is positively related with one's compensation but negatively related with one's workloads.

Faculty with lower compensation and faculty working in financially poorer institutions tend to perceive more institutional decline. One's committee service is also

related to one's perceptions of institutional decline. Overall, the relationship is rather weak.

As shown in Table **4-4**, the seven regression models generally produce low to moderate R^2 values. Family SES, unionization, instructional consolidation and employee benefits have no significant impact on faculty's satisfaction and perception. It is also surprising that research productivity, measured by number of scholarly work and funded research, has little influence on faculty's satisfaction either. This is probably because the study is limited to full-time instructional faculty in research and doctoral institutions where research is the most important mission. Across the board, the factors, such as being female, being a minority, having doctoral degree, heavier workload and higher teaching productivity, have negative impacts on one's satisfaction with different aspects in work. The factors such as seniority and higher compensation have positive impacts.

Intention to Leave

Five models were used to predict one's intention to leave (see Table **4-5**). In Model One, only personal characteristics variables were examined. Then, institutional characteristics were added in Model Two, work experiences variables in Model Three, job satisfaction variables in Model Four and, finally, external variables were entered in Model Five. The change of R^2 was examined as each new block of variables was put into the model. The first two models explain about 3.5 percent of the variance in

intended departure, with gender and race being positively associated with intended departure and Ph.D. attainment and family SES being negatively associated with intended departure. It should be noted that that institutional characteristics, an institution's control, size, wealth, diversity, degree of unionization, employee benefits and instructional consolidation have no significant ***direct*** influence on one's intention to leave. The R^2 change from Model One to Model Two is not significant.

As work experiences variables were entered in Model Three, the increase of R^2 is significant. Seniority has the strongest negative impact on one's intention to leave. Senior faculty are more likely to stay. Faculty who work longer hours each week are more likely to leave. But those who hold a doctoral degree, who have higher teaching productivity and who are involved more in the university governance are less likely to depart.

Job satisfaction variables also significantly improve R^2 in Model Four which explains 26.7% of the total variance. Satisfaction with job security, along with seniority, has very strong ***direct*** impact on one's departure intention. Faculty who are more satisfied with different aspects in their job, such as compensation, autonomy, resources and organizational climate, are less likely to leave. The faculty who perceive an institutional decline are more likely to seek another position.

In Model Five, five external variables are examined. Academic disciplines have little impact on one's departure intention. Only one external variable, extrinsic rewards, has significant negative impact. The R^2 increases to .274, but the change of R^2 from Model Four to Model Five is not significant.

In Model Five, two personal characteristics variables are significantly related with one's intention to leave, race and educational attainment. Minority faculty and faculty who have a master's degree or lower have stronger departure intentions. Controlling for all the variables in the analysis, two work experience variables have significant negative impacts on faculty intention to leave: seniority and teaching productivity. Seniority is the strongest predictor. Job satisfaction and perception variables are significantly associated with one's departure intention. The faculty who feel their jobs as secure, who are satisfied with their salary and benefits, who are satisfied with their job authority and resources on campus are more likely to stay. The faculty who perceive institutional decline are more likely to leave. Satisfaction with workload and gender/racial climate on campus has no significant impact on one's intention to leave. Finally, faculty who regard extrinsic rewards, such as salary, benefits, tenure, and opportunities for advancement, as the most important factors when they seek another position are less likely to leave. Probably, those faculty who think highly of extrinsic rewards in their job are unlikely to leave unless they have got an unbeatable offer.

SEM Results for all Faculty

Direct and Indirect Effects

The **A**nalysis of **MO**ment **S**tructures (AMOS) statistic package was used for the SEM analyses. AMOS is one of the few statistic packages available for implementing

SEM (i.e., other available SEM packages are LISREL and EQW). The strength of AMOS lies in its user-friendliness. The user does not have to manipulate sets of equations or matrices with Greek names. The user draws out the path diagram, which is the structural equation model itself, and AMOS calculates the estimates. The user then improves the model upon the results and modification indices suggested by AMOS. In this study, SEM analyses attempted to answer the following questions: *What are the causal relationships among the variables? What are the direct and indirect effects of the causal variables on intentions to leave? Do the data reject the hypotheses made at the beginning of Chapter Three?*

Only the variables that are significant at .05 level in the OLS regression analyses were included in SEM. This leads to a lower R^2 in SEM results compared with OLS results. One of the weaknesses of AMOS is its inability to handle weighted data and design effects, which is critical for the accuracy of this study. In order to get appropriate estimates, a weighted correlation matrix was generated by SPSS and was run in AMOS. In order to adjust for both oversampling and stratification, the matrix was weighted on the design effect adjusted relative weight ($deffwt_i$). Thus, AMOS is able to produce correct factor weights, regression weights, standard errors, and significance test results. Figure **4-6** shows the final path diagram. Only the significant paths are included. The standardized weights are shown on the paths which have direct effects on departure intention. Table **4-6** summarizes the standardized direct, indirect and total effects of each variable on intention to leave:

Figure 4-6: Path Diagram – Intention to Leave for all Faculty

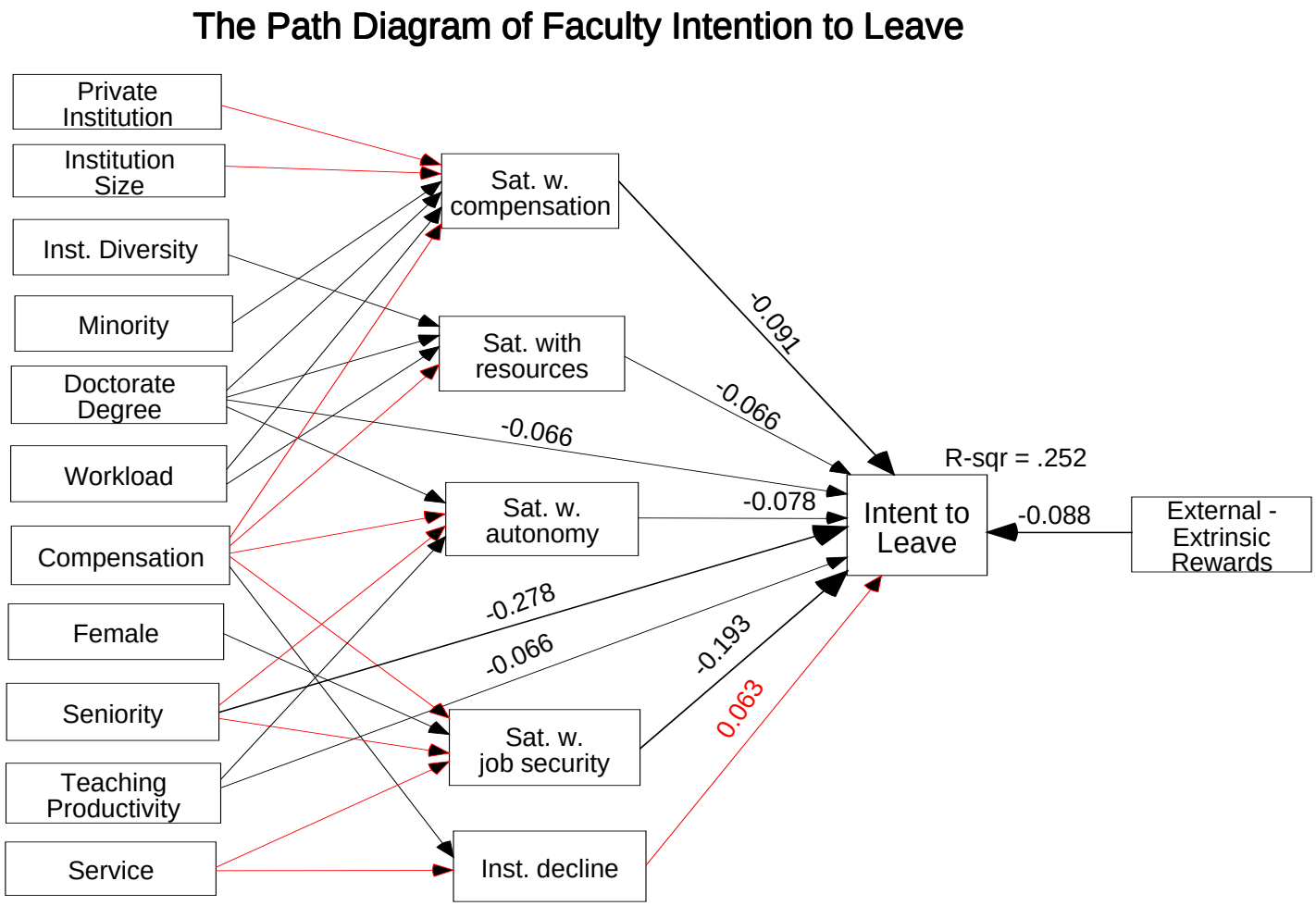


Table 4-6: Standardized Direct, Indirect and Total Effects for all Faculty

	Variable	Direct Effects	Indirect Effects	Total Effects
1	Seniority	-.278	-.055	-.333
2	Satisfaction w. Job Security	-.193		-.193
3	Satisfaction w. Compensation	-.091		-.091
4	Pull – Extrinsic Rewards	-.088		-.088
5	Satisfaction w. Autonomy	-.078		-.078
6	Compensation		-.074	-.074
7	Satisfaction w. Resources	-.066		-.066
8	Perceived Institutional Decline	.063		.063
9	Teaching Productivity	-.066	.004	-.062
10	Doctoral Degree	-.066	.019	-.047
11	Female		.015	.015
12	Committee Service		-.011	-.011
13	Workload		.010	.010
14	Minority		.009	.009
15	Institution Size		-.008	-.008
16	Private Institution		-.007	-.007
17	Institution Diversity		.004	.004

Seniority is the strongest predictor of departure intention, which has direct impact and indirect impact through its influences on satisfaction with job security and satisfaction with autonomy. All job satisfaction variables have direct effects. Satisfaction with job security is the second strongest predictor. The only external variable is extrinsic rewards, including the aspects of higher salary, better benefits, tenured position, and opportunities for advancement. Compensation, one's total income from his/her institution, does not have significant direct effect on intention to leave, but it influences every aspect of one's job satisfaction. Its total effect is larger than those of satisfaction with resources and perceived institutional decline. Teaching productivity and doctoral degree have moderate negative impacts on departure intention. The rest of the variables, female, minority, workload, and committee service, have fairly weak effects.

At the bottom of the list are institutional characteristics variables, institutional size, control, and diversity.

Hypotheses Testing Results

In Chapter Three, several hypotheses were made regarding the relationship between each predicting variable and intention to leave. This section summarizes the results of hypotheses testing. These results are derived from the structural equation modeling as shown in Figure **4-6**.

1. Personal Characteristics and Intention to Leave

H_{1a}: Female faculty have stronger intentions to leave than male faculty.
H_{1b}: Minority faculty have stronger intentions to leave than non-minority faculty.
H_{1c}: Faculty without doctoral or professional degrees have stronger intentions to leave than faculty with doctoral or professional degrees.
H_{1d}: Single faculty have stronger intentions to leave than married faculty.
H_{1e}: Faculty with heavier financial stress have stronger intentions to leave.

The data failed to reject hypotheses H_{1a}, H_{1b}, and H_{1c}. Controlling for all other variables, female and minority faculty and the faculty without doctoral degrees have stronger intentions to leave. However, the effects of gender, ethnicity and educational attainment on departure intentions are not strong. Educational attainment has both direct and indirect effects on intentions to leave. The effects of gender and ethnicity are

mediated by intervening variables such as satisfaction with job security and satisfaction with compensation. The data rejected hypotheses H_{1d} and H_{1e}. Family/marital status and family SES do not have significant impact on faculty's departure intention, after controlling for all other influences.

2. Institutional Characteristics and Intention to Leave

H_{2a}: Faculty working in public institutions have stronger intentions to leave than faculty in private institutions.
H_{2b}: Faculty working in bigger institutions have stronger intentions to leave than faculty in smaller institutions.
H_{2c}: Faculty working in poorer institutions have stronger intentions to leave than faculty working in wealthier institutions.
H_{2d}: Faculty working in more ethnically diversified institutions have stronger intentions to leave than faculty working in less ethnically diversified institutions.
H_{2e}: Faculty whose institutions provide poor employee benefits have stronger intentions to leave than those faculty whose institutions provide good employee benefits.
H_{2f}: Faculty working in non-unionized institutions have stronger intentions to leave than faculty working in unionized institutions.
H_{2g}: Faculty whose institutions are taking actions to replace full-time faculty with part-time faculty have stronger intentions to leave.

The data failed to reject hypotheses H_{2a}, H_{2b} and H_{2d}. Controlling for all other influences, faculty working in private or bigger universities are more satisfied with their compensation and, therefore, are more likely to stay. This result is inconsistent with NCES's (2001) report on actual turnover rates during the year 1997 and 1998. NCES found that the non-retirement turnover rate was 7.4% in private research institutions, 6.6% in public research institutions, and 6.4% in both public and private doctoral

institutions. This difference is due to the fact that this study examines turnover intentions, not actually turnover rates. This study found that the faculty in private institutions are inclined to stay because of their higher salaries, although during the particular year of 97-98, a higher percentage of faculty in those institutions actually left for another position.

The faculty working in ethnically diverse campuses are somehow less satisfied with the instructional and research resources and thus are more likely to consider another position. Like personal characteristics variables, institutional characteristics variables have indirect and weak effects. The data rejected hypotheses H_{2c}, H_{2e}, H_{2f} and H_{2g}. Institutional wealth, employee benefits, degree of unionization and institutional policies and practices to consolidate instruction were not found to be significantly related to higher turnover intentions, after controlling for all other variables.

3. Work Experience and Intention to Leave

H_{3a}: Junior faculty have stronger intentions to leave than senior faculty.

H_{3b}: Faculty who have heavier workload have stronger intentions to leave.

H_{3c}: Faculty who have higher level of teaching productivity have stronger intentions to leave.

H_{3d}: Faculty who have higher level of research productivity have stronger intentions to leave.

H_{3e}: Faculty who are more involved in administrative services have stronger intentions to leave.

H_{3f}: Faculty who receive lower compensations from their institutions are more likely to leave.

The data failed to reject hypotheses H_{3a}, H_{3b}, H_{3c}, H_{3e} and H_{3f}. Controlling for all the other variables, most of the work experience variables have strong effects on intentions to leave. Senior faculty are very unlikely to seek another position. Faculty who have higher compensation are more satisfied with their job and thus intend to stay. Faculty who feel more stress from work are considering moving to another position. Faculty who spend more time in teaching and who get more involved in university governance are more likely to stay. The data rejected hypotheses H_{3d} - faculty's research productivity does not influence their departure intentions after controlling for all the other variables. It is probably because the primary mission of these institutions is research. All the faculty have spent a lot of time and efforts in research activities.

4. Job Satisfaction and Intention to Leave

H_{4a}: Faculty who are less satisfied with their job security have stronger intentions to leave.

H_{4b}: Faculty who are less satisfied with their compensations and employee benefits have stronger intentions to leave.

H_{4c}: Faculty who have a higher level of workload have stronger intentions to leave.

H_{4d}: Faculty who have a lower level of job autonomy have stronger intentions to leave.

H_{4e}: Faculty who are less satisfied with teaching and research resources have stronger intentions to leave.

H_{4f}: Faculty who feel a "chilly" institutional climate have stronger intentions to leave.

H_{4g}: Faculty who perceive their institutions as less effective have stronger intentions to leave.

The data rejected two hypotheses H_{4c} and H_{4f}. Controlling for all other influences, satisfaction with workload and perceived institutional climate were not found to be significantly related to faculty departure intentions. The data failed to reject the other five hypotheses. Satisfaction with job security and satisfaction with compensation have very strong direct positive effects on turnover intentions. After controlling for all the other influences, faculty who are less satisfied with teaching and research resources, who are less satisfied with job autonomy, and who perceive institutional decline are more likely to seek another position.

5. External Factors and Intention to Leave

H_{5a}: External job market is a significant external force that pulls faculty away from their current institutions.
H_{5b}: Research opportunity is a significant external force that pulls faculty away from their current institutions.
H_{5c}: Teaching opportunity is a significant external force that pulls faculty away from their current institutions.
H_{5d}: Extrinsic reward (such as salary, benefits and opportunities for advancement) is a significant external force that pulls faculty away from their current institutions.
H_{5e}: Family consideration is a significant external force that pulls faculty away from their current institutions.

Of the five hypotheses on external factors, the data failed to reject only one of them. External extrinsic reward is an important factor in a faculty member's decision to take another position. Research opportunities, teaching opportunities and family considerations do not have a significant effect. After controlling for the other variables in the model, faculty intentions to leave do not vary by academic disciplines either. This

result echoes the early finding in the descriptive analysis in Table **4-3**. Although the average level of faculty intention to leave in agriculture and home economics is the highest (mean = .155) and in natural sciences (mean = .066) is the lowest among all the disciplines, both the AVONA test and SEM test did not find these differences are statistically significant.

Chapter 5

Results – Comparison of Tenured vs. Non-Tenured Faculty

One problem that emerged from the previous analyses is the composition of the variable "seniority." It contains a lot of information: a faculty member's age, career age, tenure status, academic rank, time in rank, and length of service at current institution. These variables are highly correlated. A faculty member who is senior in age tends to have longer career age, has tenure status, has already been promoted to associate professor or even full professor, and has been in rank for a long time. Since senior people are unlikely to leave, these faculty tend to have served their institutions for a long period of time as well. Baldwin's (1990) classification of faculty career age notes that a faculty member's career can be divided into four stages: entry period, early career, mid-career and late career. Faculty in different career stages have different tasks and development needs, therefore, the factors that influence their departure intentions may change as faculty enter a different career stage. Thus, the study went further to examine whether the faculty at a different career stage will show different patterns of departure intentions.

In this study, age, career age, time in rank and length of service are all continuous variables. It is arbitrary if we simply define entry stage as "0 to 1 year since highest degree", or early career stage as "1 to 6 years since highest degree" because faculty members' work experiences differ a lot. A newly hired tenure-track assistant professor may have a career age of six years because this person has worked as an untenured

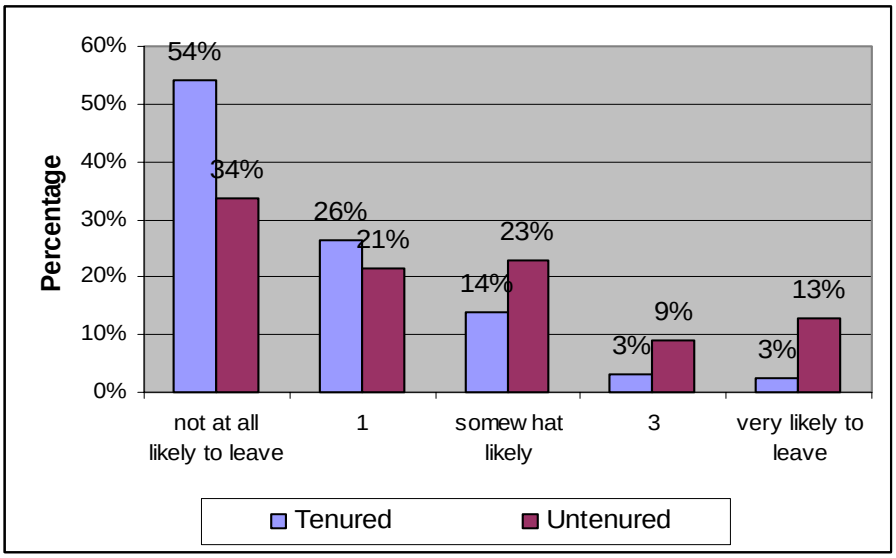
lecturer in another institution since graduation. Tenure status and academic rank are better indicators of one's career stage: the former indicates the end of a six-year probationary period, and the latter indicates one's status on the academic ladder. However, tenure status is not automatically associated with higher academic rank. As Table **4-1** (on page 77) shows, about 3.1% instructors and lecturers and 5.5% assistant professors are tenured, while 7.3% full professors and 18.8% associate professors are not tenured. An initial analysis found that "intention to leave" has a little higher correlation with tenure status (r = -.301) than with academic rank (r = -.281).

To avoid too many stratifications of faculty, this study used tenure status to categorize faculty into two groups: tenured group and non-tenured group. The non-tenured group includes the faculty who are on tenure track but not tenured yet, who are not on tenure track although their institutions have a tenure system, and who work for institutions without a tenure system. Thus, the research questions are: *Do tenured and non-tenured faculty show different patterns of departure intentions? What factors are significant to tenured faculty? What factors are significant to non-tenured faculty? What are the causal relationships among the variables?*

The follow-up analyses used the same conceptual framework and most of the same variables. The major difference is with the variable "seniority." The new variable "seniority" only contains three items: age, career age and length of service. "Academic rank" becomes an independent variable. The original dataset was split into two, one of the tenured group and the other of the non-tenured group. Figure **5-1** shows tenured faculty have a stronger intention to stay – 54% of them do not intend to leave at all. Non-tenured faculty have stronger intention to leave – 13% of them are very likely to leave in

the next three years. An "F test" was conducted using AMOS to test whether a single structural equation model was enough for two groups of faculty. The result was significant which strongly indicates that a structural equation model has to be built for each group. Therefore, two SEM models were built and examined. The magnitudes of the direct and indirect effects of the independent variables on departure intentions are reported.

Figure 5-1: Intention to Leave – A Comparison of Tenured vs. Nontenured Faculty



Regression Analyses for Tenured and Non-tenured Faculty

Before building two SEM models, an OLS regression was conducted to lay a foundation for structural equation modeling. All the job satisfaction and perception variables were treated as dependent variables using personal characteristics, institutional characteristics and work experience variables as predictors. Table 5-1 summarizes the

results of the regression analyses on tenured faculty and Table 5-2 summarizes the results on non-tenured faculty. Only the standardized beta weights which are significant at .05 level or lower are reported.

Job Satisfaction and Perceptions

Satisfaction with workload is influenced by personal characteristics, but even more strongly by one's work experiences. For both tenured and non-tenured faculty, those who spent more time on administrative committee services tend to be less satisfied with their workload, along with female faculty and the faculty who work for longer hours each week. Seniority and compensation exert positive influences on tenured faculty's satisfaction with workload. The non-tenured faculty who hold a doctoral degree are less satisfied with their workload. For either group, the level of satisfaction does not vary significantly by institutional characteristics.

One's total income from his/her institution is the strongest predictor of tenured faculty's satisfaction with compensation. The tenured faculty who reported heavier workload tend to feel that they are underpaid. The tenured faculty working in private and bigger universities tend to be more satisfied with their salary and benefits than those working in public and smaller universities. Minority faculty, as well as the faculty who have a doctoral degree, are less satisfied with their compensation. For non-tenured faculty, minority status is the strongest predictor of one's satisfaction with compensation, followed by one's total income. Another interesting finding is the lack of association between seniority, academic rank, productivity and satisfaction with compensation for

either group of faculty. Junior faculty and the faculty with lower academic rank tend to have lower salaries but that does not influence their satisfaction with salary. Faculty tend to have different levels of teaching, research and service productivity, but the type of work has little impact on faculty satisfaction either.

Two personal characteristics variables have significant impact on one's perceptions of gender/racial climate on campus for both groups. Gender has the strongest negative influence. Female faculty believe they are treated less fairly than their male counterparts. Minority faculty have lower satisfaction, too.

Institutional characteristics have impact on tenured faculty's satisfaction with resources. The tenured faculty in wealthier institutions are more satisfied with resources while those in the institutions with higher minority student enrollment are less satisfied. Satisfaction with resources is positively related with one's compensation. However, the regression model is rather poor in predicting non-tenured faculty's satisfaction with resources and the R^2 is very low. None of the institutional characteristics and work experience variables turn out to be significant.

Academic rank has the strongest positive impact on one's satisfaction with job security for both tenured and non-tenured faculty. For tenured faculty, heavy workload decreases one's satisfaction with job security. For non-tenured faculty, seniority decreases one's feeling of job security: non-tenured faculty who are advanced in age, career age and who serve longer in the institution tend to be dissatisfied with their job security. Non-tenured who receive higher compensation are more satisfied but minority faculty are less satisfied than white faculty.

Table 5-1: OLS Regression Results on Job Satisfaction for Tenured Faculty

Variables	Standardized Beta Weights						
	Satisfaction w Workload	**Satisfaction w Compensation**	**Perceived Campus Climate**	**Satisfaction w Resources**	**Satisfaction w Job Security**	**Satisfaction w Autonomy**	**Perceived Institutional Decline**
Personal Characteristics							
Female	-.090**		-.297**				
Minority		-.112**	-.079*				
Doctoral Degree		-.098**					
Marital Status							-.083*
Family SES							
Institutional Characteristics							
Private Institution		.110**					
Size		.098*					
Wealth			-.083*	.114**			-.108**
Diversity				-.089*			
Instructional Consolidation							
Unionization							
Benefits							
Work Experience							
Seniority	.166**			.104*		-.081*	
Academic Rank					.177**		
Workload	-.146**	-.116**		-.106**	-.076*		
Creative Work							
Funded Research							
Teaching Productivity						-.087*	
Committee Service	-.166**						
Compensation	.115**	.241**		.125**			
R^2	.154	.127	.114	.083	.068	.057	.056
Adj. R^2	.130	.103	.089	.057	.042	.031	.029

** Significant at .01 level. * Significant at .05 level.

Table 5-2: OLS Regression Results on Job Satisfaction for Non-tenured Faculty

Variables	Standardized Beta Weights						
	Satisfaction w Workload	**Satisfaction w Compensation**	**Perceived Campus Climate**	**Satisfaction w Resources**	**Satisfaction w Job Security**	**Satisfaction w Autonomy**	**Perceived Institutional Decline**
Personal Characteristics							
Female	-.108**		-.341**		-.102*		
Minority		-.154**	-.075*			-.082*	
Doctoral Degree	-.113**					-.145**	
Marital status				.087*			
Family SES							
Institutional Characteristics							
Private Institution							
Size							
Wealth							
Diversity							
Instructional Consolidation							
Unionization							
Benefits							
Work Experience							
Seniority					-.087*		
Academic Rank					.161**		
Workload	-.194**						
Creative Work							
Funded Research							
Teaching Productivity						-.088*	
Committee Service	-.142**						.118*
Compensation		.121**			.084*		
R^2	.106	.074	.140	.054	.068	.050	.060
Adj. R^2	.077	.044	.113	.024	.038	.020	.030

** Significant at .01 level. * Significant at .05 level.

The model is very weak in predicting one's satisfaction with autonomy. Teaching productivity has negative impact on both tenured and non-tenured faculty. Senior tenured faculty report lower satisfaction with autonomy. Among the non-tenured faculty, minority and those with doctoral degree are less satisfied with job autonomy.

Tenured faculty who work in financially poorer institutions tend to perceive more institutional decline. The tenured faculty who are married report less institutional decline. For non-tenured faculty, it is surprising that committee service increases one's perceptions of institutional decline.

As shown in Table **5-1** and Table **5-2**, the seven regression models generally produce low to moderate R^2 values for both tenured and non-tenured groups. Family SES, instructional consolidation, degree of unionization, employee benefits and research productivity have no significant impact on faculty's satisfaction and climate perception.

SEM Results on Intention to Leave

Only the variables that were significant at .05 level in the OLS regression analyses were included. Figure **5-2** and Figure 5-3 show the final diagrams. Only the significant paths are included. Table 5-3 summarizes the standardized direct, indirect and total effects of each variable on intention to leave.

Figure 5-2:

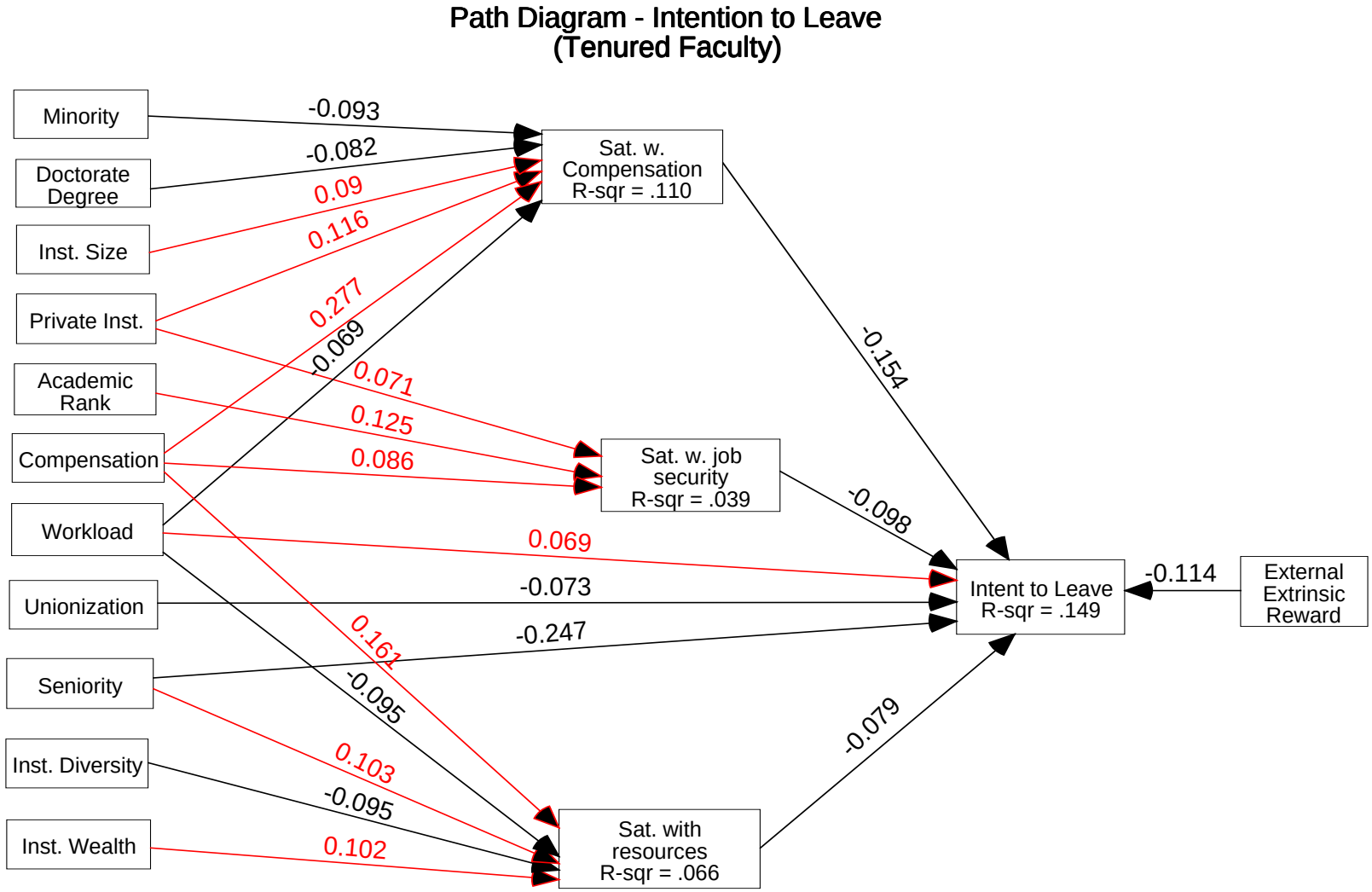

Path Diagram - Intention to Leave
(Tenured Faculty)
Minority
Doctorate Degree
Inst. Size
Private Inst.
Academic Rank
Compensation
Workload
Unionization
Seniority
Inst. Diversity
Inst. Wealth
Sat. w. Compensation R-sqr = .110
Sat. w. job security R-sqr = .039
Sat. with resources R-sqr = .066
Intent to Leave R-sqr = .149
External Extrinsic Reward
-0.093
-0.082
0.09
0.116
0.277
-0.069
0.071
0.125
0.086
0.161
-0.095
0.103
-0.095
0.102
-0.154
-0.098
0.069
-0.073
-0.247
-0.079
-0.114

Figure 5-3:

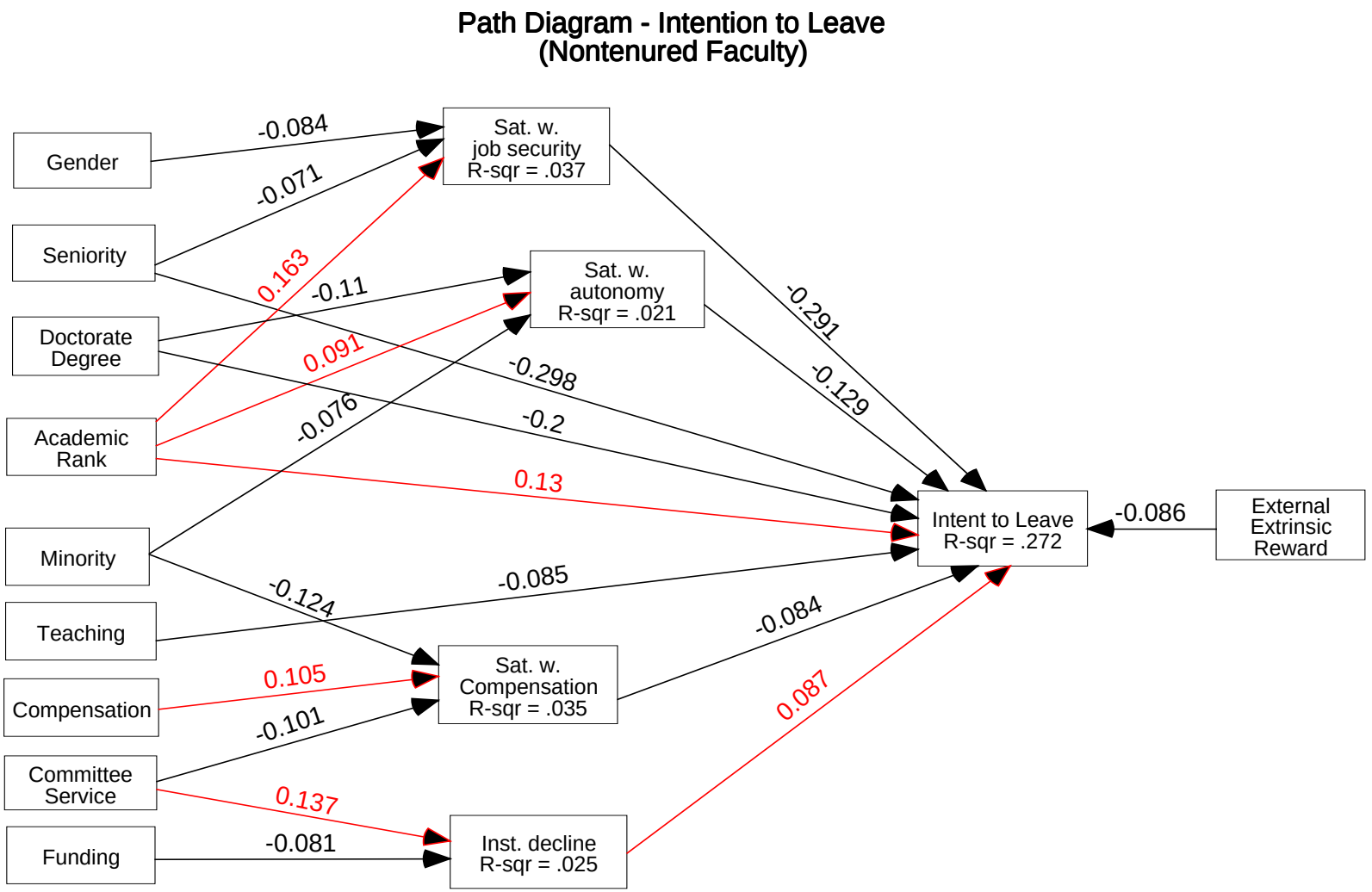

Path Diagram - Intention to Leave
(Nontenured Faculty)
Gender
Seniority
Doctorate Degree
Academic Rank
Minority
Teaching
Compensation
Committee Service
Funding
Sat. w. job security R-sqr = .037
Sat. w. autonomy R-sqr = .021
Sat. w. Compensation R-sqr = .035
Inst. decline R-sqr = .025
Intent to Leave R-sqr = .272
External Extrinsic Reward
-0.084
-0.071
0.163
-0.11
0.091
-0.076
-0.298
-0.2
0.13
-0.124
-0.085
0.105
-0.101
0.137
-0.081
-0.291
-0.129
-0.084
0.087
-0.086

Table 5-3: Standardized Direct and Indirect Effects – A Comparison of Tenured vs. Nontenured Faculty

Variables	Standardized Estimates					
	Tenured Faculty			Non-tenured Faculty		
	Direct Effects	Indirect Effects	Total Effects	Direct Effects	Indirect Effects	Total Effects
Personal Characteristics						
Female					.024	**.024**
Minority		.014	**.014**		.020	**.020**
Doctoral Degree		.013	**.013**	-.200	.014	**-.186**
Marital Status						
Family SES						
Institutional Characteristics						
Private Institution		-.025	**-.025**			
Size		-.014	**-.014**			
Wealth		-.008	**-.008**			
Institutional Diversity		.008	**.008**			
Instructional Consolidation						
Unionization	-.073		**-.073**			
Benefits						
Work Experience						
Seniority	-.247	-.008	**-.255**	-.298	.021	**-.277**
Academic Rank		-.012	**-.012**	.130	-.059	**.071**
Workload	.069	.018	**.087**			
Creative Work						
Funded Research					-.007	**-.007**
Teaching Productivity				-.085		**-.085**
Committee Service					.020	**.020**
Compensation		-.064	**-.064**		-.009	**-.009**
Job Satisfaction						
Satisfaction with Job Security	-.098		**-.098**	-.291		**-.291**
Satisfaction with Compensation	-.154		**-.154**	-.084		**-.084**
Satisfaction with Autonomy				-.129		**-.129**
Satisfaction with Resources	-.079		**-.079**			
Perceived Institutional Decline				.087		**.087**
External Factors						
External Extrinsic Reward	-.114		**-.114**	-.086		**-.086**

SEM Results for Tenured Faculty

Seniority is the strongest predictor of departure intention, which has direct impact and indirect impact through its influences on satisfaction with resources. Three dimensions of satisfaction have significant impact on departure intention: satisfaction with compensation, satisfaction with job security and satisfaction with resources. Satisfaction with compensation is the second strongest predictor among all the variables in the model. The tenured faculty who have higher compensation are more satisfied and are more likely to stay in their current position. The faculty who are satisfied with their job security and resources available on campus are more likely to stay. The third strongest effect comes from an external variable, external extrinsic reward, which includes the aspects of higher salary, better benefits, tenured position, and opportunities for advancement. Those faculty who regard external extrinsic reward as highly important are less likely to leave. In addition, unionization and workload also have direct impacts on intention to leave. Faculty working at unionized institutions are more likely to stay, but those who are under heavy workload are more likely to seek another position.

Compensation has the strongest indirect effects on one's intention to leave. It influences all three dimensions of faculty job satisfaction and increases faculty's intention to stay. Other indirect effects, as shown in the diagram, are generally very weak. Minority faculty and the faculty who have a doctoral degree, because of their lower satisfaction with compensation, are more likely to leave. Four institutional characteristics variables have indirect effects: institutional control, size, wealth, and

diversity, through their influences on faculty satisfaction with compensation and resources. Faculty in private, bigger and wealthier institutions are more likely to stay, but the faculty in ethnically diverse institutions are more likely to leave. Workload decreases faculty's satisfaction with compensation and resources and thus increases one's intention to leave. Faculty with higher academic rank are more satisfied with their job security and are more likely to stay.

Inside the institution, the following variables have little direct or indirect effects on faculty departure intentions: gender, marital status, family SES, institutional policies to consolidate institution, employee benefits, research productivity, teaching productivity, committee service, satisfaction with autonomy, satisfaction with workload, and satisfaction with campus climate. Outside the institution, research opportunities, teaching opportunities, and family considerations have no significant effects. The pull of the external job market, as measured by academic disciplines, has little effect either.

SEM for Non-tenured Faculty

For non-tenured faculty, seniority again has the strongest direct effect but satisfaction with job security has the strongest total effect on faculty's departure intentions. Seniority has opposite effects on one's intention to leave: on the one hand, with a standardized beta weight of -.298, seniority directly reduces the faculty's intention to leave; on the other hand, senior non-tenured faculty are less satisfied with their job security, and thus seniority indirectly increases the faculty's intention to leave. The combination of these opposing forces yields a total standardized effect of -.277, which

means seniority has negative impacts on departure intention. The direct effect of satisfaction of job security, with a standardized beta weight of -.291, is the second strongest among all the variables having direct impact on intent to leave. Doctoral degree exerts the third strongest direct effect: the non-tenured faculty with a master's degree or lower are more likely to look for another position.

Besides seniority, another two work experience variables have direct effects, academic rank and teaching productivity. Unlike the tenured faculty, non-tenured faculty with higher academic rank are more likely to leave. The faculty with higher teaching productivity are more likely to stay. Four dimensions of job satisfaction have direct impacts: satisfaction with job security, satisfaction with autonomy, satisfaction with compensation, and perceived institutional decline. The first three have positive effects, and the last one has a negative effect. Like tenured faculty, external extrinsic rewards have a direct impact on faculty departure intention but their effect is weaker for non-tenured faculty.

Among all the variables having significant indirect effects on intention to leave, the effect of academic rank is the strongest. Higher academic rank increases the faculty's satisfaction with job security and autonomy and thus has a negative effect on intention to leave. This negative indirect effect weakens the positive direct effect of academic rank on departure intentions but the direct effect is still more powerful.

Three personal characteristics variables have indirect effects. Female faculty are less satisfied with job security and are more likely to leave. Minority faculty, due to their lower satisfaction with job security and compensation, are more likely to leave. Doctoral degree negatively influences one's satisfaction with autonomy. Unlike tenured faculty,

work productivity influences non-tenured faculty's departure intention indirectly. Non-tenured faculty who are more involved in funded research are more likely to stay. However, the faculty who are more involved in committee services perceive more institutional decline and thus are more likely to leave.

For non-tenured faculty, institutional characteristics have no significant direct or indirect effect on departure intentions. In addition, marital status, family SES, workload, the number of creative scholarly publications in the recent two years, satisfaction with workload, satisfaction with campus climate and satisfaction with resources have little impact on intention to leave. Overall, the model for non-tenured faculty has a larger R^2 (equals to .272) than the one for tenured faculty (R^2 equals to .149). Therefore, the non-tenured faculty model is more robust than the other.

Chapter 6

Summary, Implications and Conclusions

The changes pervading higher education have had profound effects upon the academic profession. They have brought about marked changes in the working conditions, attitudes, expectations, and possibly in the performance of the faculties (Bowen & Schuster, 1986, p. 4). In the long run, they will affect the kinds of people attracted to and retained by the academic profession. The results from our analyses convey two messages regarding what factors pull a faculty member away from his/her current position, and what institutions can do to increase faculty job satisfaction and to reduce turnover. This section summarizes the major findings, the theoretical and practical implications and the limitations of the study.

Given the purpose of the study, it is useful to compare the two SEM models not only with each other, but also with the earlier studies by Smart(1990) and by Matier(1990). Appendix B summarizes and compares the major findings from these three studies. This study extends Smart's by using the latest national data on postsecondary faculty and by including a larger array of variables that NSOPF-99 makes possible, such as minority status, academic rank, doctoral degree, unionization, family financial situation and several institutional characteristics. And importantly, this study adds and tests the external forces that were missing from Smart's model but included in Matier's. In most respects, the findings and significant variables for the tenured faculty model replicate Smart's. While this study includes more significant variables than

Smart's (e.g., institution size, wealth, unionization, academic rank, workload, doctoral degree, external rewards), these variables have such weak effects that they do little to increase the overall R^2 beyond Smart's model (R^2 = .15 in our study, .13 in Smart's). The differences between these two studies are visible primarily in the model for untenured faculty (R^2 = .27 in our study, R^2 = .14 in Smart's). The greater robustness of the model for the non-tenured group apparently derives not only from the greater strength of the additional NSOPF-99 variables (rank, teaching productivity, extrinsic rewards), but also because of the robustness of the satisfaction measures, like satisfaction with job security and autonomy.

Matier's 1990 study was valuable in conceptualizing and constructing the external "pull" factors. He did a case study on 239 tenure-track faculty from two universities and compared their ratings of enticement to leave with enticement to stay. His methodology and population were so different from this study, however, that direct comparisons with this study are difficult. Matier found that extrinsic reward is a strong tangible enticement for a faculty member to leave while research opportunity is a strong intangible enticement to remain. Given his findings, one might expect that more than one of the five external factors included in this study would prove significant. However, except for extrinsic rewards, none of the other four variables, research and teaching opportunities, family considerations and labor market situations influence intended departure.

Summary of the Findings

Factors Influencing Faculty Turnover Intentions

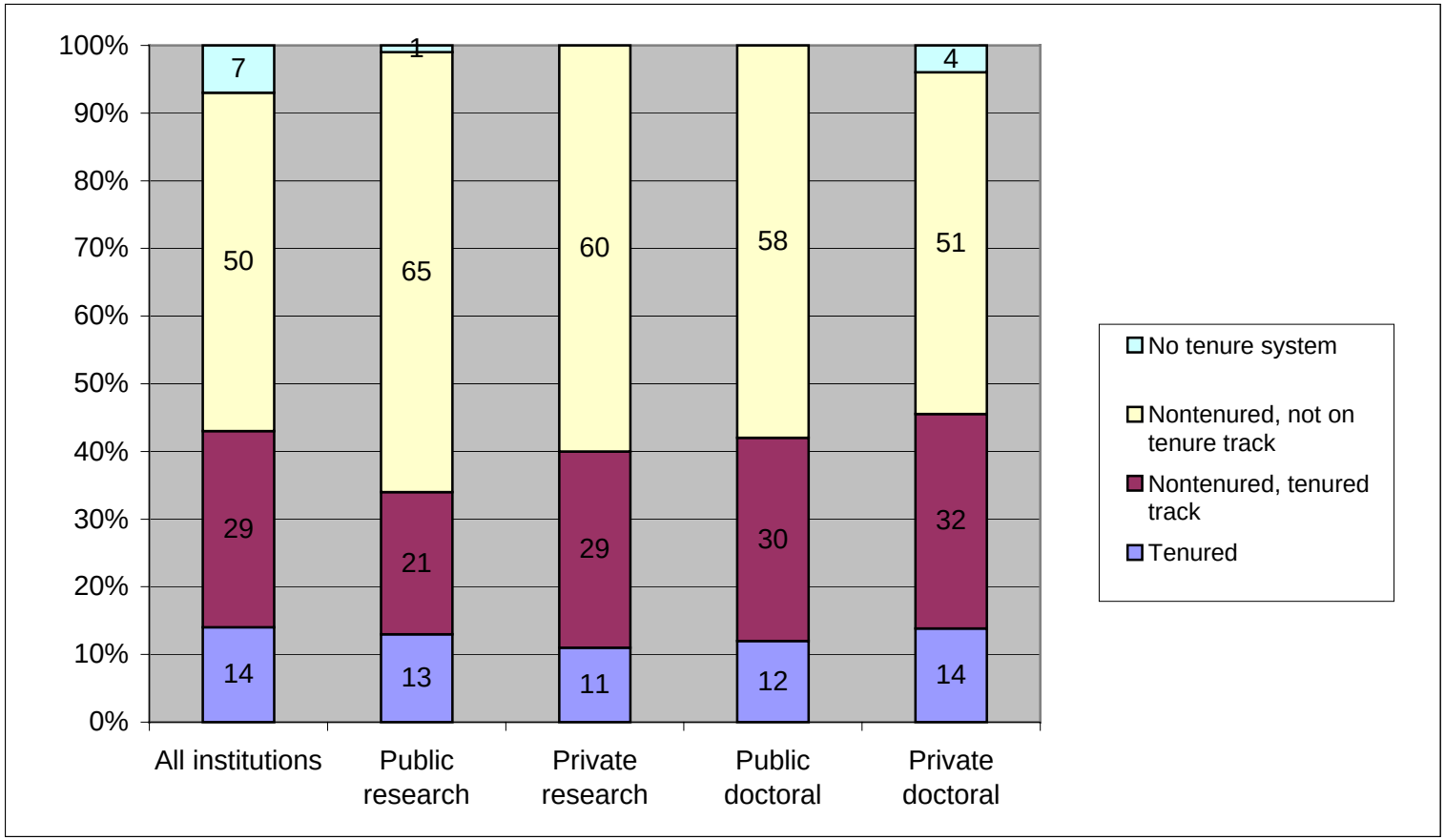
The SEM results for all faculty (as shown in Figure **4-6** on page 96 and Table **4-6** on page 97) suggest that seniority, satisfaction with job security, and satisfaction with compensation greatly reduce voluntary turnover. Seniority is a construct reflecting one's age, career age, tenure status, academic rank, time in rank and length of service at the institution. Seniority has both direct and indirect effects on faculty departure intentions, and its impact is stronger than the combination of satisfaction with job security and compensation. The effect of three variables together outweighs all other variables in the model. This finding, combined with the results from the descriptive statistics, suggests that tenure, promotion, career stage and all the other elements of seniority are the most essential components of faculty retention. Figures **4-1**, **4-2**, and **4-4** graphically show how faculty's intention to leave decreases by age, career age, and academic rank. Figure **4-3** shows that intention to leave among non-tenured faculty is much higher than the tenured group. It is especially high among the faculty who are not on tenure track but whose institution has a tenure system.

The direct path from seniority to satisfaction with job security suggests that tenure and promotion in rank not only protect faculty's academic freedom, but also provide them with job security. This study echoes Smart's (1990) finding that tenured faculty and non-tenured faculty have different patterns of departure intentions. This finding is also supported by the NSOPF-99 Institution data on real faculty turnover rate. Among

the faculty who left their positions for non-retirement reasons in fall 1998, most of them were not tenured. Figure **6-1** shows the percentage distribution of non-retirement turnover by tenure status for full-time faculty in research and doctoral institutions. Less than 14% of the faculty who left were tenured, about 30% were on tenure track but not tenured, and the remaining 55% were not tenured and not on tenure track. The non-tenured faculty did have higher mobility than the tenured.

The salary/benefit package is an important reward. Faculty compensation and satisfaction with compensation are significant internal variables that push faculty to stay. Figure **4-5** shows that the higher the total compensation a faculty member receives from his/her institution, the less likely he/she reports a high turnover intention. But higher salaries and better benefits are also significant factors that pull faculty to another position. This finding has been well documented in higher education literature (Matier, 1990; Moore and Gardner, 1992; Smart, 1990; Schuster & Wheeler, 1990; Weimer, 1985). This research reveals that the effect of faculty compensation on intention to leave is indirect. In the initial modeling, a direct path was drawn from compensation to intention to leave, but that path turned out to be statistically insignificant. Although having no direct effect, compensation influences every aspect of job satisfaction and, therefore, has a strong total effect on departure intention.

Figure **6-1**: Percentage Distribution of Non-Retirement Turnover by Tenure Status (Full-time Instructional Faculty, Fall 1998)



*All institutions include all public and private not-for-profit Title IV participating, degree-granting institutions in the U.S.

Source: U.S. Department of Education, NCES, NSOPF-1999, "Institution Survey."

Satisfaction with job autonomy and resources tend to increase faculty's intention to stay while perceived institutional decline tend to increase their intention to leave. Satisfaction with workload and satisfaction with gender/racial climate do not have significant effects on departure intention. Smart (1990) reported the same impact of institutional decline on intention to leave. When faculty perceive a decline in the quality of research and undergraduate education, when they feel the atmosphere is less conductive to free expression of ideas, when they see many full-time faculty have been replaced by part-time faculty, and when they begin to worry about their own job security, they will have a stronger intention to leave.

Although the effect sizes are small, teaching and service productivity, rather than research productivity, have statistically significant effects on faculty's job satisfaction and departure intentions. Committee service may increase faculty's commitment to the institution and, therefore, strengthen their intentions to stay. Teaching productivity, on the one hand, decreases faculty's satisfaction with job autonomy; on the other hand, it directly weakens faculty's intention to leave. The direct effect is much more powerful. This study supports McGee and Ford's (1987) early finding that the faculty member's teaching responsibilities are negatively related to turnover intentions. However, it fails to find any significant association between research productivity and turnover intentions, as suggested by many other studies (i.e., Bycio, Hackett, & Alvares, 1990; McEvoy & Cascio, 1987; Smart, 1990). For instance, Smart (1990) reported that for tenured faculty, research time and research productivity exert great influence on their departure intentions. The reason for the inconsistency is due to the differences in the types of institutions included these two studies. Smart (1990) studied full-time faculty in all types

of institutions. In some institutions, research is the primary mission; while in others, undergraduate teaching is the primary mission. Therefore, the faculty in Smart's study had a much larger variation in their research productivity than the faculty included in this study. Some researchers (i.e., Zhou & Volkwein, 2003) found that in community colleges, the faculty with higher research productivities are more inclined to seek another position.

The study shows that many other internal factors, that might have been expected to influence faculty departure intentions, do not have significant effects after controlling for all other variables in the model: family/marital status and family SES, degree of unionization of the institution, institutional policy and practices to consolidate instruction, and employee benefits.

This study identifies five external variables, external job market, external extrinsic rewards, research opportunities, teaching opportunities, and family considerations. Extrinsic job rewards is the only one having a significant direct effect on intention to leave. The faculty who regard extrinsic rewards as highly important are very unlikely to leave. This is probably because of two reasons: first, the faculty in the sample generally have very low departure intention. 46% of them do not intend to leave at all in the next three years; only 7.3% are very likely to leave. Second, the study is about departure intention, not actual turnover behavior. Those faculty who regard extrinsic rewards as highly important are probably more likely to stay unless they have received an unbeatable offer. Many studies found that promotion in rank and large salary increases are among the most powerful external forces that pull their faculty away (i.e., Matier, 1990; Moore and Gardner, 1992). Extrinsic rewards are significant pulls, but institutions should not

ignore other pull variables. Research resources and support, including labs, facilities, equipment, library, graduate students, research collaboration among faculty, grant support services from the department and the institution, are among the many improvements the institution can make to retain and attract faculty.

In this study, academic discipline is used as a proxy for external labor market because the faculty members' mobility is often confined by their professional fields. In the past decade, some academic fields have grown, some have remained static, and others have contracted. Despite this reality, faculty's departure intentions do not vary by academic discipline.

Differences between Tenured and Non-Tenured Faculty

Figure **5-2** and **5-3** present the path diagrams for the tenured and non-tenured faculty respectively. Seniority is re-defined as a construct reflecting one's age, career age, and length of service at the institution. Academic rank becomes an independent variable. Comparing the two path diagrams, the following factors are important to both groups: seniority, compensation, satisfaction with compensation, satisfaction with job security, external extrinsic reward, academic rank, minority status and doctoral degree. Seniority and the things related to it (like rank and compensation) seem to form an especially powerful set of variables. For both groups of faculty, seniority has the strongest direct effect on departure intention. Senior faculty, those who are advanced in age, career age and who have served their institution for a longer period of time, are less likely to leave. This finding supports Smart's (1990) early finding that faculty with longer career age are

unlikely to leave regardless of their tenure status. He reported that career age is one of the strongest predictors of intention to leave.

For tenured faculty, satisfaction with compensation outweighs the satisfaction of job security; but for non-tenured faculty, job security is much more important. Tenure status increases faculty's feeling of job security. Satisfaction with compensation is the second strongest predictor of tenured faculty's departure intention, but its influence on non-tenured faculty is much weaker. Tenured faculty who feel they are underpaid are more likely to consider another position. This result is different than Smart's (1990): he reported that satisfaction with compensation has moderate effect on non-tenured faculty but weak effect on tenured faculty.

Academic rank has different impacts on tenured vs. non-tenured faculty. For the tenured group, it increases faculty's job security and indirectly reduces their departure intention. For the non-tenured group, although it increases one's satisfaction with job security, more important, it directly strengthens one's departure intention. Previous research generally reported an inverse relationship between academic rank and intention to leave. For instance, NCES (1997) reported that in the year 1992, assistant professors, lecturers and instructors were more likely than full professors to consider leaving their current position. Caplow and McGee (1958) argued that mobility among associate professors is higher than that among assistant and full professors because this group can benefit more from moving to another position than the other two groups. This study suggests that in research and doctoral institutions non-tenured faculty with higher academic rank appear to be more mobile and interested in leaving. Bear in mind that

some of these highly ranked but potentially departing faculty are at universities with no tenure system.

Matier (1990) reported that compensation is a tangible weak enticement to remain but the strongest enticement to leave. This research echoes Smart's (1990) early finding that compensation indirectly influences departure intentions for both groups of faculty. For the tenured group, it influences all three aspects of job satisfaction and eventually has a strong total effect. However, for the non-tenured group, the total effect of compensation is one of the weakest among all the variables.

Minority faculty, tenured or non-tenured, are more likely to leave. Having a doctoral degree is more important to non-tenured faculty than the tenured. Non-tenured faculty with a master's degree or lower are more likely to leave – this effect is direct and strong. Indirectly, doctoral degree moderately increases one's intention to leave for both groups of faculty.

Some variables in the model (such as institutional characteristics, workload, productivity, satisfaction with autonomy, satisfaction with resources and perceived institutional decline) only influence one group of faculty. Institutional characteristics variables (e.g., size, wealth, diversity, and unionization) have statistically significant influences on tenured faculty only. Apart from unionization, which directly and strongly reduces tenured faculty's intention to leave, the rest of the variables only have weak and indirect impacts. Tenured faculty in private, larger, and wealthier institutions are more likely to stay but those in institutions with higher minority enrollment have stronger intention to leave.

Being female and an ethnic minority, and having heavier workload have smaller impacts on faculty departure intentions than we might expect from reading the higher education literature. For instance, using 1984 data, Smart (1990) found the effect of gender on intention to leave is positive, strong, and direct: tenured female faculty are more likely to leave. However, this study found a very weak indirect effect: female non-tenured faculty, due to their lower satisfaction with job security, are more likely to leave. The difference in the findings is probably due to the demographic changes in academia. Compared to 15 years ago, nowadays there are more female and minority faculty. The path diagram also suggests that non-tenured minority faculty, because they are generally less satisfied with their compensation, are more likely to leave. But the effect is also very weak.

Limitations

The value of the NSOPF-99 database is its representativeness and robustness. However, the selection of variables for our analyses is restricted by the available information in the two NSOPF-99 surveys. Most importantly, we are only able to study turnover intentions, not the actual turnover behaviors. Research has demonstrated that the two are related, but future studies should attempt to examine actual turnover behavior. This study included a variety of variables in the regression and SEM analyses; however, the overall R^2 s for the SEM models is still low. It managed to explain 27% of the variance in non-tenured faculty's intentions to leave and 15% for tenured faculty. An early research of Smart (1990) reported even lower R^2 s: .13 for tenured group and .14

for non-tenured group. These low R^2 s lead to the suspicion that there are still other factors in faculty's work lives that are not included in the NSOPF-99 survey but are important to intended faculty turnover. For example, some studies have shown that teamwork, interpersonal conflict, and departmental leadership exert strong effects on levels of satisfaction (Carnevale & Rios, 1995; Matier, 1990; Volkwein et al., 1998, 2000). Most NSOPF-99 data do not reflect these variables, even indirectly. Changes in family-related or personal circumstances, the birth of a baby, the death of someone close, marriage, divorce, illness, or another significant event occurring to oneself or to a significant other, also influence a faculty member's outlook and decision on both life and the job (Duxbury, Higgins, & Lee, 1994; Hagedorn, 2000). However, due to the limitations of the survey instrument, no survey items in NSOPF-99 tap these family variables, and thus they do not appear in the model. Further national studies of postsecondary faculty should aim to collect more information on the immediate working environment of the faculty members. Department climate is largely missing from NSOPF-99.

As described earlier in Chapter Two, the traditional ways of analyzing faculty workload and productivity have a number of limitations. Layzell (1999) noted two particular limitations. First, the ways in which faculty work is currently measured focus too much on inputs (i.e., time and effort) and too little on outcomes (i.e., scholarship and productivity). For example, concentrating on measures such as weekly contact hours or average student credit hours says nothing about the quality of advising provided, or what students ultimately learned. Second, it is difficult to capture the intangible inputs and outputs. Measuring the hours spent in a classroom or the number of journal articles

produced tells us little about the quality of instruction provided or the quality of the scholarship. Unfortunately, no framework is available to overcome these two limitations (Layzell, 1999). This study used self-reported data to measure faculty workload and productivity. It used four latent variables to capture as many aspects of faculty research, teaching and service productivity as possible. However, these variables are subject to the same two limitations mentioned above.

Future research should also aim at collecting both qualitative and quantitative data to reveal the magnitude of both direct and indirect influences of these additional variables on faculty's intention to leave. This study only focuses on full-time faculty in research and doctoral institutions. The results may be different on part-time faculty or faculty working in other types of postsecondary institutions. The theoretical model clearly needs to be tested at varying types of institutions and for varying sub-groups of faculty so that different types of colleges and universities will recognize the factors that may be causing faculty attrition and make faculty salaries and working conditions competitive to assure the recruitment and retention of genuine talent (Bowen & Schuster, 1986).

Implications

This study includes a variety of variables in the analysis. It is the first that tests both the internal variables and external variables at the same time. It used the latest and the most representative data to study full-time instructional faculty in research and doctoral institutions. The findings have high generalizability. They are especially valuable for institutional policy making.

Implications for Research

Many studies on faculty mobility stress the influences of the academic labor market on faculty's ease to move and their departure behavior. However, few studies have simultaneously examined the factors within a faculty member's institution and the factors outside. This study represents an isolated attempt to investigate the relationships among the internal and external factors that influence departure intentions. The results have several implications for future research.

While many studies claim that women and minority faculty report higher intentions of departure, this study found that these demographic variables do not have a direct impact. Instead, their effects are mediated by intervening satisfaction variables, such as satisfaction with job security and satisfaction with compensation. It is the dissatisfaction in these areas, rather than demographic reasons, that pushes these faculty away from their current institutions.

The study also concluded that descriptive analyses alone are not adequate to study the patterns of faculty departure. For instance, Table **4-3** shows significant differences in mean values of intention to leave among faculty with different marital/family status, and between unionized and un-unionized faculty. It also reports that faculty working in public institutions do not have stronger intentions to leave than their counterparts in private institutions. However, the regression and SEM analyses tell a different story. After controlling for all other variables in the model, marital/family status is not significantly associated with faculty turnover intentions. Degree of unionization influences only the tenured faculty. Institutional control indirectly influences tenured

faculty through its effects on satisfaction with compensation and satisfaction with job security.

The capability to calculate indirect effects is an important feature of SEM. It brought about an unexpected result in this study. Table **4-5** reports the results using OLS regression. In none of the five models does the variable compensation have a significant effect on intent to leave. However, SEM analyses (Figure **4-6**, Table **4-6**) reveal that compensation is the 6th strongest predictor of intentions to leave. OLS regression has overlooked the indirect effect of compensation on all the aspects of job satisfaction. Future study should further explore the causal relationships among the predicting variables. One of the ideas is to treat certain work experiences variables, such as compensation, as mediating variables between personal/institutional characteristics variables and job satisfaction variables. Previous research has identified the same set of personal characteristics (such as gender, ethnicity, and career age), institutional characteristics (such as institutional control and institutional wealth) and work experience variables (such as academic rank, tenure, and productivity) as predictors of one's annual income from an institution. It will be interesting to test how compensation mediates one's work experience and job satisfaction and finally influences one's intention to leave.

This study included a variety of variables in the regression and SEM analyses; however, the overall R^2 for three SEM models is still low. It manages to explain 27% of the variances of non-tenured faculty's intentions to leave and 15% of tenured faculty. These low R^2s lead to the suspicion that there are still other factors in faculty's worklives that are not included in the NSOPF-99 survey but are important to faculty turnover intentions. Many studies suggest that departmental environment and leadership,

departmental/institutional reputation, interpersonal relationship, intellectual challenges, and personal life are among the most likely variables. Further national studies of postsecondary faculty should aim to collect more information on the immediate working environment of the faculty members. Individual researchers should also attempt to include both qualitative and quantitative data in this type of analysis.

Implications for Institutional Policies and Practice

The results and findings of this study carry important messages for institutions. They highlight several policies and practices that institutions can take to improve their recruitment practices and retention of valuable faculty.

Faculty Reward

Compensation, tenure and job security are important factors in faculty retention. The AAUP noted that tenure is a means not only to academic freedom but also to "a sufficient degree of economic security to make the profession attractive to men and women of ability" (AAUP, 1996a). In other words, academic careers on the traditional tenure track also provide financial rewards to maintain commitment and loyalty. Lacking this protection and reward, non-tenured faculty show much higher concern with job security and stronger intentions to leave. The recent financial constraints have forced many institutions to hire more and more non-track faculty full-time or part-time faculty to

replace tenure track full-time faculty. These people are normally on a fix-term contract and take a heavier teaching load at the undergraduate level. These practices save money for faculty salaries, but the saving is at the cost of increasing turnover rate and possibly disrupting course offerings. Institutions that hire a large proportion of non-tenured faculty should be prepared for higher turnover rate. Institutions which have a tenure system are especially vulnerable to high turnover among the non-tenure track full-time professors. Institutions should provide strong support for these faculty and assist their career development. The result of this study provides support both for a tenure system and for a post-tenure review policy. On one hand, a tenure system will help to retain high quality faculty – tenured faculty are less likely to leave their current institutions. On the other hand, without an effective post-tenure review policy, some senior faculty may lose their momentum to pursue academic challenges and their programs may gradually lose vitality.

Faculty salaries are a prominent feature of the reward system. Because faculty salaries are usually the largest single item in academic budgets, they have unquestionably drawn a lot of scrutiny. This study found strong evidence that salaries strongly affect the attitudes of faculty towards their job. Salary gains may be emphasized on a symbolic level by faculty as legitimation and recognition of their worth to their home institution (Clark, 1983; Tuckman, 1976). Previous research suggested that a faculty member's relative salary to his/her peers, rather than his/her absolute salary, affects his/her attitudes and performance. The importance of relative pay is heightened by its endurance: salary differences tend to persist because salary adjustments in the universities tend to be small and incremental in nature. Therefore, if no major adjustments are made over time, once a

faculty member is somewhat underpaid, he/she is likely to remain underpaid, regardless of performance. Widening salary disadvantages can bring growing dissatisfaction among affected faculty and strengthen their intentions to leave. Institutions should be responsive to salary equity issues and watch out for salary compression and salary inequities. Some institutions need to correct their past salary discriminations against senior faculty, female faculty and minority faculty.

At the aggregate level, this study provides support for Ehrenburg's (2002) finding that public doctoral and research institutions and institutions whose average faculty salary is lower than its competitors are at a disadvantage in faculty recruitment and retention. This study revealed that faculty, especially tenured faculty, at private and wealthier institutions are more likely to report a higher level of satisfaction with compensation and resources, and thus have higher intentions to stay. Public and private universities differ in average faculty salaries. Two patterns in public-private salary differences have emerged from recent national studies. First, salaries are appreciably higher in each faculty rank in the private institutions (AAUP, 1997). Notably, full professors in public doctoral institutions in 1996-97 earned about $20,000 less than their counterparts in private doctoral institutions (AAUP, 1997). Second, the growth of average faculty salaries in the years since the mid-1980s has been faster overall in private institutions than in public institutions. This has widened the salary gaps between these two types of institutions. Public institutions have been faced with even tighter financial constraints recently, and this will compromise their competitiveness in the academic labor market.

Faculty Development Practices

This study also reveals that faculty at different career stages have different concerns. Non-tenured faculty are concerned more with job security, autonomy, and institutional effectiveness than with their compensation. Work assignments, especially teaching and service activities, also influence their job satisfaction and intentions to leave. On the other hand, tenured faculty care more about compensation than job security. External extrinsic rewards are a stronger pull for them than for non-tenured faculty. This may suggest the need to accelerate faculty compensation at the point that tenure is achieved. In the following section, Baldwin's framework (1990) on faculty career stage is used to categorize different practices that are effective for faculty at different career stages.

For Entry Level and Early Career-Stage Faculty: Among younger faculty, stress may be well stem from unknowns of the struggle for tenure and promotion, from the inadequacies of salaries, and from family issues (i.e., child-raising, or dual-career couple). Institutions should acknowledge the special burdens of the early academic career. It is in their best interest to help junior faculty members to overcome initial career anxiety, make a smooth career transition, and prosper in the new position. A well-planned orientation program can help entering faculty to adjust to the institution. A supportive mentoring program can promote career transition and professional socialization. Perhaps most important, academic administrators should be willing to adjust faculty assignments during the early-career years to help professors accomplish their highest professional priorities (Baldwin, 1990, p. 33). Our research suggests that

departmental leaders should be most flexible in assigning service responsibilities to non-tenured faculty because too many service demands will lead to higher level of departure intentions among them. Baldwin (1990) even suggested that institutions reduce normal teaching, advising, or committee work for faculty at this stage.

Mid-Career Faculty: Baldwin (1990) suggested that higher education institutions pay attention to the costly toll of the "deadwood" (p. 34) among midcareer professors. Deadwood refers to unproductive veteran faculty who feel no immediate threat to their job security and who lack concrete career goals and directions. This study found senior faculty, whether they are tenured or not, are more likely to stay than their junior colleagues in the same group. This can be both good and bad for an institution. Productive mid-career faculty are valuable resources to the institution. The retention of these faculty is critical for maintaining the quality/reputation of the academic program and for fulfilling the missions of the institution. Institutions should help mid-career faculty to examine their careers periodically and identify new challenges for the future. Unproductive tenured professors, however, can represent an institutional problem. In such a situation, institutions should make career change and early retirement feasible so that midcareer academics can leave campus for other types of work that they may find more invigorating.

Late Career: This study did not include the faculty who have retired or who plan to retire in the next three years. But institutions should realize the psychological and financial concerns of retiring faculty and help them to prepare for a secure retirement. Phased retirement, which enables a faculty member to reduce workload gradually, can smooth his/her path to retirement. Retiring faculty and retired faculty should be regarded

as an institutional resource. They are great mentors for early-career professors. Meaningful work that is recognized and respected by others is important to all stages of work life, of course, but it may be essential in bringing a long academic career to a satisfying conclusion (Baldwin, 1990).

Policies Regarding Minorities in the Institutions

Here, minorities include not only ethnic minority groups, but also female faculty, and the faculty with no doctoral or first-professional degrees. Table **3-2** shows that among the full-time faculty in research and doctoral institutions, 29.5% of them are female, 17.3% are ethnic minorities, and 14.3% do not have doctoral or first professional degrees. In this study, the variable, satisfaction with gender/ethnical climate on campus, is not a significant factor after controlling for all other variables in the model. However, this result doesn't mean that institutions should be satisfied with their campus climate. Table **4-4** presents four variables contributing to faculty's satisfaction with campus climate: female (with a beta weight of -.311) is the strongest predictor. The second strongest predictor is minority status, with a beta weight of -.077. The last two are doctoral degree and institutional diversity. Female, minority and faculty without a doctoral degree are dissatisfied with campus climate after controlling for individual and work experience variables.

Female faculty are more likely to report that their institutions do not treat them as fairly as they treat their male colleagues. In recent years, the proportion of female faculty has increased overall, and the new entrants have tended to be in the junior ranks and in

low-paying fields without substantial demand outside universities (AAUP, 1997; Hearn, 1999). Some studies reported that female faculty tend to earn appreciably less than male faculty, regardless of the faculty member's age and number of hours worked (AAUP, 1996b; Hearn, 1999). For junior faculty, the probationary years before tenure tend to be the most stressful and usually coincide with prime childbearing and childbearing responsibilities. Female faculty experience special pressure from work and family. Finkel and Olswang's (1996) study of a research university found that more than 44 percent of women assistant professors had no children; 30 percent reported they had decided never to have children, and 49 percent had postponed having children. More importantly, 43 percent of the women reported that the time children required presented a serious threat to their chances for tenure (Finkel and Olswang, 1996). Institutions should realize the special pressure on junior female faculty and adopt appropriate policies to remove gender inequities on campus and to help female faculty overcome dual demands in work and life.

In recent decades, federal attention to affirmative action, along with the independent commitment made by many institutions to increase minority representation on their faculties, have undoubtedly increased the demand for minority scholars, and perhaps put upward pressures on their salaries as well (Hearn, 1999). However, the number of minority faculty members remains shockingly small (NCES, 1996). This study found that minority faculty, due to their dissatisfaction with their compensation, have stronger intentions to leave. Previous studies on relative earnings of different racial/ethnic groups in higher education are inconclusive: some found evidence of minority faculty being underpaid; others found no such evidence at all. Institutions that

want to maintain their faculty diversity should be more responsive to possible salary inequities on campus.

Many studies in the past focus on female and ethnic minority faculty, almost none on faculty with a master's degree or lower. This lack of attention may stem from people's assumption that it takes a Ph.D. to become a faculty member, especially a faculty member in research and doctoral institutions. However, this study found that over 14% of full-time instructional faculty in these institutions do not have a doctoral degree. The percentage should be higher in comprehensive, liberal arts and 2-year institutions. Little is known about their demographic characteristics, appointment status, job satisfaction, and career plan and needs. Those faculty seem to be "invisible", silently struggling in a place dominated by people with doctoral degrees. Intuitively, institutions may have realized that this group has a strong turnover intention and high turnover rate. Institutions should also realize that the performance, productivity, morale and satisfaction of these faculty are also important for the organization.

Conclusions

"Recruiting and retaining the best faculty is fundamental to an institution's academic quality." (Gappa & MacDermid, 1997, p. 1) Cole (1994) noted the competitions among research and doctoral institutions for top quality faculty as follows:

> To be recognized as the best, research universities try to monopolize the talent market… to bring in as many truly distinguished faculty as budgets and persuasion will permit – both younger and more established eminences, whose research publications are envied by others and who have won recognition from institutions that confer recognition and

> rewards for research achievements. … It is the principal basis for their reputational standing and prestige.

While faculty members find their greatest satisfaction in their autonomy and independence of academic life, they also face multiple demands for their time and multiple expectations for accomplishments in teaching, research, and service (Bailyn, 1993). Dissatisfaction with one's job, career, and institution can lead to departure intentions and departure behaviors.

This research focused on the dynamics of faculty satisfaction and intention to leave as an important institutional outcome and predictor of faculty turnover. It proposed a theoretical model of faculty turnover intentions and tested the model using the latest national data on postsecondary faculty. The study focused on full-time instructional faculty in research and doctoral institutions. Structural Equation Modeling (SEM) was used to identify and model the relationships among the variables associated with intended faculty departure. It built three path models which illustrate the direct and indirect effects of demographic, institutional, work experience and satisfaction variables on intention to leave. It found that the top three strongest predictors of faculty departure intentions are seniority, satisfaction with job security, and satisfaction with compensation. Senior faculty are less likely to seek another position than junior faculty. For tenured faculty, satisfaction with compensation is more important than satisfaction with job security; and for non-tenured faculty, vice versa. The total effects of these three variables overweight all the total effects of the rest of the variables in the model. Satisfaction with autonomy, with resources and perceived institutional decline also have strong direct effects. Faculty's work experience influences their intentions to leave, both directly and indirectly

through its impacts on job satisfaction. Teaching and service productivity, rather than research productivity, is significantly related to turnover intentions. Compensation has strong indirect effect through its impact on every aspect of job satisfaction. The effects of personal characteristics and institutional characteristics variables are weak and indirect.

Although this study is limited by the available information in NSOPF-99, it has strong generalizability. Using the results, policymakers can improve the retention rate of high quality faculty by improving campus climate, changing the financial or personnel policies, increasing the compensation of faculty or using merit pay, reassigning faculty workload, and providing incentives on teaching, research or service, etc. These policies can be implemented at the institutional level or at the departmental level. The results of this study will provide empirical proof for the scholars, institutional researchers and planners, and campus and system executives to use in their decision-making.

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Appendix A

Correlation Table

Part One:

		1	2	3	4	5	6	7	8
1	Female	1.00							
2	Minority	0.04	1.00						
3	Doctoral Degree	-0.12**	0.02	1.00					
4	Family Status	-0.13**	0.02	0.04	1.00				
5	Family SES	0.01	-0.04	0.11**	-0.04	1.00			
6	Private Inst	-0.01	0.00	0.06*	0.05	0.06*	1.00		
7	Size	-0.04	-0.02	0.06	-0.02	0.00	-0.38**	1.00	
8	Wealth	-0.02	0.01	0.10**	0.03	0.10**	0.34**	-0.19**	1.00
9	Diversity	-0.01	0.16**	0.11**	0.00	0.05	0.15**	-0.05*	0.28**
10	Instructional Consolidation	-0.01	0.01	-0.04	0.01	0.00	-0.16**	-0.07*	-0.14**
11	Benefits	0.03	0.02	0.02	0.05	0.03	0.16**	0.13**	0.04
12	Unionization	0.02	0.04	0.00	-0.01	-0.01	-0.16**	-0.08**	-0.01
13	Seniority	-0.24**	-0.14**	0.14**	0.10**	0.13**	0.00	0.05	0.01
14	Compensation	-0.23**	-0.03	0.27**	0.14**	0.26**	0.16**	0.06*	0.23**
15	Workload	-0.05*	-0.06*	0.08**	-0.01	0.07*	-0.06*	0.01	0.05
16	Scholarly Work	-0.12**	-0.01	0.13**	0.08**	0.07*	0.00	0.02	0.10**
17	Funded Research	-0.14**	0.01	0.17**	0.11**	0.09**	0.07*	0.02	0.19**
18	Teaching	0.01	-0.03	-0.12**	0.01	-0.06*	-0.04	-0.02	-0.14**
19	Service	-0.01	-0.06**	0.09**	0.03	0.00	-0.04	0.04	-0.03
20	Satisf. w. Workload	-0.13**	0.01	-0.04	0.04	0.02	0.09**	-0.01	0.05*
21	Satisf. w. Job Security	-0.19**	-0.07**	0.12**	0.10**	0.06*	0.04	0.02	0.05
22	Satisf. w. Compensation	-0.08*	-0.12**	0.00	-0.01	0.05*	0.10**	0.07*	0.11**
23	Satisf. w. Autonomy	-0.07*	-0.06*	-0.03	0.06*	0.03	0.07*	0.01	0.08**
24	Satisf. w. Resources	-0.06*	-0.01	-0.03	0.04	0.03	0.05*	0.03	0.08**
25	Perceived Climate	-0.33**	-0.08**	0.00	0.07*	0.00	0.02	0.00	-0.01
26	Inst. Decline	0.04	0.00	-0.03	-0.06*	-0.06*	-0.07*	-0.01	-0.09**
27	Agriculture	-0.06*	-0.04	-0.05	0.00	-0.04	-0.09**	0.02	-0.05*
28	Business	0.01	0.02	-0.03	0.04	0.00	0.03	-0.04	-0.04
29	Education	0.13**	-0.02	0.04	-0.03	0.01	-0.08**	0.06*	-0.08**
30	Engineering	-0.13**	0.08**	0.02	0.06	0.00	-0.04	-0.02	-0.03
31	Fine Arts	0.04	-0.03	-0.32**	-0.04	-0.03	-0.06*	-0.03	-0.07**

32	Health Sciences	0.06*	0.01	0.05	0.07*	0.02	0.09**	-0.02	0.16**
33	Humanities	0.13**	0.06	-0.01	-0.13**	-0.04	0.00	0.00	-0.03
34	Natural Sciences	-0.14**	0.00	0.14**	0.02	0.04	0.00	0.01	0.09**
35	Social Sciences	0.00	-0.03	0.08**	0.01	-0.02	0.01	0.03	-0.03
36	Other Programs	0.01	-0.06*	-0.08**	0.00	0.04	0.06*	-0.01	-0.02
37	Extrinsic Rewards	0.04	0.11**	0.04	0.01	-0.06**	-0.06*	0.02	-0.01
38	Research Opportunity	-0.05*	0.15**	0.22**	0.03	0.04	0.06	0.05	0.09**
39	Teaching Opportunity	0.11**	0.10**	-0.29**	-0.05	-0.07**	-0.04	-0.07*	-0.11**
40	Family	0.04	-0.01	-0.02	0.03	0.01	-0.01	-0.02	0.05
41	Intent to Leave	0.12**	0.09**	-0.12**	-0.03	-0.08**	-0.02	-0.01	-0.05

Part Two

		9	10	11	12	13	14	15	16
1	Female								
2	Minority								
3	Doctoral Degree								
4	Family Status								
5	Family SES								
6	Private Inst								
7	Size								
8	Wealth								
9	Diversity	1.00							
10	Instructional Consolid.	0.05	1.00						
11	Benefits	0.03	-0.05*	1.00					
12	Unionization	0.17**	0.16**	-0.10**	1.00				
13	Seniority	0.02	-0.04	0.00	0.03	1.00			
14	Compensation	0.10**	-0.11**	0.07**	-0.03	0.44**	1.00		
15	Workload	0.03	0.00	0.01	0.01	0.05*	0.17**	1.00	
16	Scholarly Work	0.01	-0.04	0.00	0.01	0.21**	0.25**	0.20**	1.00
17	Funded Research	0.05	-0.03	0.02	-0.03	0.07**	0.34**	0.19**	0.27**
18	Teaching	-0.04	0.05*	-0.07**	0.00	-0.01	-0.12**	0.02	-0.03
19	Service	0.05	0.09**	0.01	0.00	0.19**	0.09**	0.18**	0.11**
20	Satisf. w. Workload	0.03	-0.03	0.04	-0.02	0.13**	0.11**	-0.18**	0.01
21	Satisf. w. Job Security	0.03	-0.03	0.01	-0.01	0.33**	0.27**	0.03	0.13**
22	Satisf. w. Compensation	0.03	-0.07**	0.05*	-0.03	0.06**	0.22**	-0.05	0.05
23	Satisf. w. Autonomy	0.02	-0.03	0.00	-0.02	0.13**	0.14**	-0.04	0.05*
24	Satisf. w. Resources	-0.05	-0.06*	0.07*	-0.07**	0.07*	0.12**	-0.07**	0.04
25	Perceived Climate	0.02	-0.01	-0.02	0.00	0.11**	0.09**	-0.01	0.04
26	Inst. Decline	0.02	0.05	-0.04	0.03	-0.02	-0.11**	0.02	0.01
27	Agriculture	-0.09**	0.00	-0.02	-0.02	0.08*	-0.01	-0.02	0.06
28	Business	-0.01	-0.04	0.03	0.00	-0.09**	0.06*	-0.05	-0.08**
29	Education	0.00	0.03	-0.03	0.02	-0.01	-0.09**	-0.02	0.04
30	Engineering	-0.05*	0.01	-0.03	0.02	-0.02	0.07*	0.04	0.08**
31	Fine Arts	-0.04	0.03	-0.04	0.02	-0.01	-0.15**	0.05	-0.06*
32	Health Sciences	0.09**	-0.01	0.01	0.01	-0.02	0.08**	0.05	0.04
33	Humanities	0.03	0.01	0.05	0.03	-0.04	-0.19**	-0.10**	-0.09**
34	Natural Sciences	0.03	0.03	-0.02	-0.01	0.04	0.08*	0.05	-0.01
35	Social Sciences	-0.02	-0.02	0.00	-0.02	0.04	0.04	-0.03	0.04
36	Other Programs	-0.02	-0.04	0.02	-0.04	0.02	0.04	0.01	0.00
37	Extrinsic Rewards	0.04	0.06*	-0.03	0.05	-0.16**	-0.09**	0.04	0.01
38	Research Opportunity	0.09**	0.02	0.02	0.01	-0.01	0.17**	0.18**	0.12**
39	Teaching Opportunity	-0.04	0.02	-0.06*	0.06	-0.09**	-0.25**	-0.11**	-0.14**
40	Family	0.01	0.04	0.01	-0.02	-0.10**	0.00	0.01	0.01
41	Intent to Leave	-0.05	0.03	-0.03	-0.03	-0.36**	-0.19**	0.02	-0.06**

Part Three

		17	18	19	20	21	22	23	24
1	Female								
2	Minority								
3	Doctoral Degree								
4	Family Status								
5	Family SES								
6	Private Inst								
7	Size								
8	Wealth								
9	Diversity								
10	Instructional Consolid.								
11	Benefits								
12	Unionization								
13	Seniority								
14	Compensation								
15	Workload								
16	Scholarly Work								
17	Funded Research	1.00							
18	Teaching	-0.19**	1.00						
19	Service	0.08**	0.11**	1.00					
20	Satisf. w. Workload	-0.02	-0.09**	-0.19**	1.00				
21	Satisf. w. Job Security	0.11**	-0.05	0.14**	0.33**	1.00			
22	Satisf. w. Compensation	0.10**	-0.07*	-0.01	0.36**	0.40**	1.00		
23	Satisf. w. Autonomy	0.06*	-0.08**	0.01	0.45**	0.42**	0.34**	1.00	
24	Satisf. w. Resources	0.06	-0.06**	-0.06*	0.30**	0.18**	0.30**	0.31**	1.00
25	Perceived Climate	0.03	-0.02	0.00	0.20**	0.20**	0.15**	0.18**	0.14**
26	Inst. Decline	-0.08**	0.07**	0.07**	-0.23**	-0.19**	-0.16**	-0.24**	-0.24**
27	Agriculture	0.02	-0.05**	0.02	0.01	0.06*	0.04	0.06*	0.03
28	Business	-0.13**	0.06**	-0.06*	0.04	0.01	-0.02	0.01	0.02
29	Education	-0.05	0.03	0.02	-0.02	-0.04	-0.05	0.02	-0.04
30	Engineering	0.10**	-0.02	0.02	-0.05*	-0.01	0.00	-0.02	0.02
31	Fine Arts	-0.11**	0.08**	0.02	-0.05	0.02	0.00	0.02	-0.03
32	Health Sciences	0.14**	0.00	0.08**	-0.06*	-0.02	0.03	-0.02	0.04
33	Humanities	-0.20**	0.08**	-0.01	0.01	-0.08*	-0.07*	-0.04	-0.05*
34	Natural Sciences	0.23**	-0.12**	-0.06**	0.01	-0.01	-0.01	-0.06*	0.05*
35	Social Sciences	-0.05*	0.01	-0.01	0.02	0.06*	0.02	0.03	-0.02
36	Other Programs	-0.07*	0.00	0.01	0.06*	0.04	0.07*	0.06*	-0.03
37	Extrinsic Rewards	-0.02	0.03	0.03	-0.09**	-0.02	-0.09**	-0.05	-0.03
38	Research Opportunity	0.22**	-0.12**	0.05	-0.07*	0.11**	0.01	-0.02	-0.06*
39	Teaching Opportunity	-0.25**	0.20**	0.01	-0.04	-0.12**	-0.04	-0.01	0.03
40	Family	0.03	-0.02	0.02	-0.05	0.02	-0.03	0.03	0.00
41	Intent to Leave	-0.02	-0.03	-0.11**	-0.20**	-0.38**	-0.23**	-0.25**	-0.18**

Part Four

		25	26	27	28	29	30	31	32
1	Female								
2	Minority								
3	Doctoral Degree								
4	Family Status								
5	Family SES								
6	Private Inst								
7	Size								
8	Wealth								
9	Diversity								
10	Instructional Consolid.								
11	Benefits								
12	Unionization								
13	Seniority								
14	Compensation								
15	Workload								
16	Scholarly Work								
17	Funded Research								
18	Teaching								
19	Service								
20	Satisf. w. Workload								
21	Satisf. w. Job Security								
22	Satisf. w. Compensation								
23	Satisf. w. Autonomy								
24	Satisf. w. Resources								
25	Perceived Climate	1.00							
26	Inst. Decline	-0.12**	1.00						
27	Agriculture	0.04	-0.01	1.00					
28	Business	0.04	0.00	-0.05	1.00				
29	Education	-0.10**	0.00	-0.05	-0.06*	1.00			
30	Engineering	0.04	-0.01	-0.05*	-0.07**	-0.07**	1.00		
31	Fine Arts	-0.03	0.05	-0.04	-0.06*	-0.06*	-0.07*	1.00	
32	Health Sciences	-0.05	0.00	-0.07**	-0.09**	-0.09**	-0.10**	-0.09**	1.00
33	Humanities	-0.08**	0.06*	-0.07**	-0.10**	-0.10**	-0.11**	-0.09**	-0.14**
34	Natural Sciences	0.09**	-0.06*	-0.11**	-0.15**	-0.14**	-0.16**	-0.14**	-0.20**
35	Social Sciences	0.02	-0.03	-0.07**	-0.09**	-0.09**	-0.10**	-0.09**	-0.13**
36	Other Programs	0.00	0.03	-0.07**	-0.09**	-0.09**	-0.10**	-0.09**	-0.13**
37	Extrinsic Rewards	-0.04	0.00	-0.04	-0.01	0.06*	-0.01**	0.07*	0.01
38	Research Opportunity	-0.03	0.03	-0.09**	-0.09**	-0.06*	0.00	0.03	0.00
39	Teaching Opportunity	-0.04	0.06*	0.01	0.03	0.12**	0.03	0.10**	0.01
40	Family	-0.06*	-0.01	0.00	0.00	0.01	-0.01	0.02	0.02
41	Intent to Leave	-0.12**	0.15**	-0.07	0.02	0.00	0.01	0.03	0.01

Part Five

		33	34	35	36	37	38	39	40
1	Female								
2	Minority								
3	Doctoral Degree								
4	Family Status								
5	Family SES								
6	Private Inst								
7	Size								
8	Wealth								
9	Diversity								
10	Instructional Consolid.								
11	Benefits								
12	Unionization								
13	Seniority								
14	Compensation								
15	Workload								
16	Scholarly Work								
17	Funded Research								
18	Teaching								
19	Service								
20	Satisf. w. Workload								
21	Satisf. w. Job Security								
22	Satisf. w. Compensation								
23	Satisf. w. Autonomy								
24	Satisf. w. Resources								
25	Perceived Climate								
26	Inst. Decline								
27	Agriculture								
28	Business								
29	Education								
30	Engineering								
31	Fine Arts								
32	Health Sciences								
33	Humanities	1.00							
34	Natural Sciences	-0.22**	1.00						
35	Social Sciences	-0.14**	-0.21**	1.00					
36	Other Programs	-0.14**	-0.20**	-0.13**	1.00				
37	Extrinsic Rewards	0.07**	-0.02	-0.04	-0.07**	1.00			
38	Research Opportunity	-0.02	0.14**	0.03	-0.06*	0.28**	1.00		
39	Teaching Opportunity	0.04	-0.14**	-0.15**	0.06*	0.19**	-0.17**	1.00	
40	Family	-0.02	0.00	0.03	-0.05	0.26**	0.15**	0.08**	1.00
41	Intent to Leave	-0.02	0.00	0.01	0.00	-0.03	-0.01	0.03	0.00

Appendix B

Comparing Findings from Smart (1990), Matier (1990) and this Study

Factors	This Study	Smart (1990)	Matier (1990)
	Data: NSOPF-99 **Faculty:** full-time, tenure & non-tenured faculty in research & doctoral institutions. **Methods:** OLS & SEM, group comparison.	**Data:** 1984 Carnegie Foundation national survey of faculty. **Faculty:** full-time, tenure & non-tenured faculty with a doctoral degree. **Methods:** OLS & SEM, group comparison.	**Data:** self-collected, both quantitative & qualitative. **Faculty:** 239 tenure-track faculty from 2 universities. **Methods:** comparing enticement to remain with that to leave.
Personal Characteristics			
Female ✯[7]	Positive, weak, indirect effect, non-tenured faculty only	Positive, strong, mainly direct, tenured faculty only	N. C.[8]
Minority Status	Positive, weak, indirect, all faculty	N. C.	N. C.
Doctoral Degree	Tenured faculty: positive, weak, indirect; Non-tenured faculty: negative, strong, mainly direct	–	N. C.
Family/Marital Status ✪[9]	N. S.[10]	N. S.	N. C.
Family SES	N. S.	N. C.	N. C.
Institutional Characteristics			
Institutional Type ✪	N. S.	Using Carnegie Classification, N. S.	–
Private Institution	Negative, indirect, weak, tenured faculty only	N. C.	–
Institutional size, wealth, and diversity	Negative, indirect, weak, tenured faculty only	–	–
Urban/Rural Campus	N. C.	N. C.	Influence the type and importance of push or pull forces
Institutional/Departmental Reputation	–	–	Strong, intangible, either a pull or a push

[7] ✯ means the results are different.
[8] N. C. means "not controlled for".
[9] ✪ means the same results.
[10] N. S. means "not significant".

Factors	This Study	Smart (1990)	Matier (1990)
Unionization	Negative, moderate, direct, tenured faculty only	N. C.	N. C.
Instructional Consolidation	N. S.	–	–
Employee Benefits ✯	N. S.	–	Moderately important
Campus Governance	–	Negative, strong, direct & indirect, all faculty (stronger for non-tenured faculty)	–
Work Experience			
Seniority (Age, career age, length of service)	Negative, strongest, direct & indirect, all faculty	–	–
Career Age ✪	–	Negative, one of the strongest, mainly a direct effect, all faculty	–
Tenure ✪	Significant differences between tenure vs. non-tenured faculty	Significant differences between tenure vs. non-tenured faculty	N. C.
Academic Rank	Tenured faculty: negative, weak, indirect; Non-tenured faculty: positive, strong, direct	N. C.	N. C.
Work Hours ✪	Positive, moderate, direct & indirect, tenured faculty only	Positive, moderate effect, tenured faculty only	Moderately important, tangible
Compensation ✪	Negative, indirect, moderate, all faculty (the effect is stronger on tenured faculty),	Negative, weak, indirect, all faculty	Tangible, a weak enticement to remain but the strongest enticement to leave
Scholarly Work ✯	N. S.	Negative, weak, direct & indirect, tenured group only	–
Funded Research ✯	Negative, very weak, indirect, non-tenured faculty only	–	Moderately important
Teaching Productivity	Negative, moderate, direct, non-tenured faculty only	–	–
Committee Service ✯	Positive, weak, indirect, non-tenured faculty only	–	–
Governance Participation	–	N. S.	–
Governance Influence ✪	–	Negative, weak, indirect, all faculty	Weak, intangible
Congeniality/Reputation of Associates	–	–	Strong, intangible, either a pull or a push
Rapport w Dept. Leaders	–	–	Strong, intangible, either a pull or a push

Factors	This Study	Smart (1990)	Matier (1990)
Job Satisfaction			
Career Satisfaction	–	Negative, direct, one of the strongest, all faculty	–
Satisfaction with Workload	N. S.	–	–
Satisfaction with Job Security	Negative, strong, direct, all faculty (stronger on non-tenured faculty)	–	–
Satisfaction with Autonomy	Negative, strong, direct, non-tenured faculty only	–	–
Organizational Satisfaction	–	Negative, one of the strongest, direct, all faculty	
Satisfaction with Resources	Negative, moderate, direct, tenured faculty only	–	Moderate, tangible
Campus Climate	N. S.	–	–
Satisfaction with Compensation ✯	Negative, strong, direct, all faculty (stronger on tenured faculty)	Negative, direct, weak on tenured faculty, moderate on non-tenured faculty	–
Institutional Decline ✪	Positive, moderate, direct, non-tenured faculty only	Positive, moderate, direct & indirect, all faculty	–
Loyalty to Institution /Department/Program	–	–	Weak, intangible, enticement to remain
External Factors			
External Labor Market (Academic Disciplines) ✪	10 categories, N. S.; 3 categories (growing, static, contracting), N. S.	Using Biglan's Classification; N. S.	N. C.
Extrinsic reward ✪	Negative, direct, strong, all faculty (stronger on tenured faculty)	–	Strong, tangible, enticement to leave, especially salary level and career advancement opportunities
Research Opportunities ✯	N. S.	–	Strong, intangible, enticement to remain
Teaching Opportunities ✯	N. S.	–	Moderate, intangible
Family Considerations ✯	N. S.	–	Weak, nonwork-related benefits
Model Fitness			
R^2	.27 for non-tenured .15 for tenured	.14 for non-tenured .13 for tenured	–

VITA

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- The Pennsylvania State University (1999 – 2003): Ph. D. in Higher Education, M. Ed. in Instructional Systems
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Zhou, Y., and Volkwein, J. F. (2003). The influences on faculty departure in two-year colleges: A national study using NSOPF-99. Paper presented at ASHE conference, Portland, OR.

Zhou, Y., and Volkwein, J. F. (2003). Examining the influences on faculty departure: A national study using NSOPF-99. Paper presented at AERA conference, Chicago, IL.

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